METRIC

MIL-H-89201/9(DMA)
29 April 1995
SUPERSEDING
MIL-H-89201
31 AUG 1990

ASSOCIATED DETAIL MILITARY SPECIFICATION

HARBOR, APPROACH, AND COASTAL CHARTS

AT SCALES 1:1,000,000 AND SMALLER (HAC 9)

This specification is approved for use by the Defense Mapping Agency, and is available for use by all Departments, and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification defines detailed requirements for the Defense Mapping Agency's (DMA) Harbor, Approach, and Coastal Charts at scales of 1:1,000,000 and smaller (HAC 9).

1.2 Purpose. The purpose of this specification is to assure uniformity of treatment among mapping and charting elements, primarily DMA and its contractors, engaged in a coordinated production and maintenance program for this product. Feature requirements are stated in terms of DMA's Feature/Attribute Coding Standard (FACS), to maintain consistency between various DMA production methods. The use of FACS in this specification is not intended to imply any external digital data coding standard. FACS is the internal coding standard used by DMA's Digital Production System (DPS), which is the primary intended, but not exclusive, method for production of this product at this time. The Digital Geographic Information Exchange Standard (DIGEST) Feature Attribute Coding Catalog (FACC), not FACS, is the approved coding standard for the exchange of digital geographic data, as well as the standard for DMA's Vector Product Format product line. FACC may be included in, or replace FACS in a future edition of this specification.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, Defense Mapping Agency, ATTN: PR, ST A-13, 8613 Lee Highway, Fairfax, VA 22031-2137 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A **AREA MCGT**

DISTRIBUTION STATEMENT A. Approved for public release, distribution unlimited.

1.3 Security.

1.3.1 Security Classification. The security classification of the products generated by the use of these specifications will be the lowest category practicable. When it is necessary to assign a security classification to the product, it shall be in accordance with established national security procedures.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation (see 6.2).

MILITARY SPECIFICATIONS

MIL-H-89201A(DMA) - General Military Specification for Harbor, Approach, and Coastal Charts (HAC-All Scales)

MILITARY STANDARDS

MIL-STD-2402(DMA) - MC&G Symbology for Graphic Products
MIL-STD-2403(DMA) - MC&G Product Generation Rules
MIL-STD-2408(DMA) - Mapping, Charting & Geodesy Glossary of Feature and Attribute Definitions

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

STANDCONTABLE 02 - Standard Conversion Table No. 2
STANDCONTABLE 03 - Standard Conversion Table No. 3
STANDCONTABLE 04 - Standard Conversion Table No. 4

(Copies of the above publications are available from the Defense Mapping Agency, ATTN: TIJ, ST A-10, Fairfax, VA 220031-2137).

Chart No. 1 - Nautical Chart Symbols and Abbreviations
PUB. 9 - American Practical Navigator
PUBS 110-116 (LLPUB) - List of Lights
N M - Notice to Mariners (NM)
PUB117 - Radio Navigation Aids
SDPUB - Sailing Directions

(Copies of the above publications are available for DoD users from the Defense Mapping Agency Combat Support Center, 6001 MacArthur Boulevard, Bethesda, MD 20816-5001. Other users may obtain these

publications from the National Ocean Service, and its authorized sales agents).

2.2 Non-Government publications.

IHO Special Pub. 46 - Correction of Echo Soundings

(Copies of the above publication are available on disc or paper format, upon request, from the International Hydrographic Organization - Monaco)

NP139 - Echo Sounding Correction Tables (3rd or latest edition)

(Copies of the above publication are available from the British Admiralty, Taunton, U.K.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards) the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Feature/Attribute data. Table I of this associated detail specification contains feature, feature attributes category, feature attribute category value, inclusion condition and specific rules necessary for the production of Harbor, Approach, and Coastal Charts, at scales of 1:1,000,000 and smaller (HAC 9).

3.2 Feature/Attribute category, inclusion conditions and product generation rules. The following is an explanation of the header format for Table I:

FCode (1) **Feature** (2)
Feature type (3)
Attributes
ACode (4) Attribute (5) Rules (7)

Inclusion conditions (6)

(1) F(Feature)Code - Five digit alpha numeric, Feature Attribute Coding Standard (FACS) Code assigned to each feature (e.g. 1N010 - R/R Tracks). The first two digits identify the category and subcategory to which each feature belongs (e.g., 1 - Culture Category, N = Transportation R/R subcategory).

(2) Feature - Name of feature as specified in the FACS. A feature is a physical (e.g., Bridge) or conceptual (e.g., Route - Nautical) entity of the real world which has one or more set of coordinates to be included on a product.

(3) Feature Type - designation of a feature type.

Area - More than two sets of coordinates defining a closed area; areas may span more than one map sheet or geographic area requirement.

Line - Two or more coordinate sets defining a series of line segments.

Point - One set of coordinates.

If there is more than one Feature Type for the feature, then the ACode and Inclusion conditions are stated separately for each type.

(4) A(Attribute)Code - Three digit alpha or alpha numeric character (acronym) FACS code assigned to each attribute category which identifies the attribute category (e.g., EXS - Existence Category). Attribute categories are defined by mutually exclusive sets of attribute values which are feature dependent. Attribute values relative to product are normally contained in MIL-STD-2402 under column headed "SValue", a few exceptions are contained in the inclusion conditions.

(5) Attribute - Name of attribute category required by the feature as specified in the FACS. Attribute categories are characteristics in menu form relative to a specified feature or features.

(6) Inclusion conditions - Conditions under which the feature/attribute(s) are required by the product (e.g., R/R Yard, 1N080 FACS Code, is included on a particular product only if Length >= 450m). Conditions should be stated in boolean logic.

(7) Rule - 5 digit alpha-numeric code indicating rules (listed in MIL-STD-2403) which specify requirements for feature to satisfy final production format/requirements. APPENDIX A of this associated detail specification provides the rule numbers and rule text for each feature and feature type shown on the Harbor, Approach, and Coastal Chart.

4. QUALITY ASSURANCE PROVISIONS

See MIL-H-89201A for quality assurance provisions for Harbor, Approach, and Coastal Charts.

5. PACKAGING

See MIL-H-89201A for packaging requirements for Harbor, Approach, and Coastal Charts.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory).

6.1 Intended use. Harbor and Approach and Coastal Charts (HACs) are various scale charts used for plotting ship courses in ocean waters. HACs are produced to support the naval and maritime community.

6.2 Acquisition Requirement. See MIL-H-89201A.

6.3 First article. See MIL-H-89201A.

6.4 Supersession. These specifications supersede Table I of Military Specifications for Harbor, Approach, and Coastal Charts (HAC), MIL-H-89201, 31 August 1990.

6.5 Standardization agreements. Certain provisions of this specification may be subject to international standardization agreements. When amendment, revision, or cancellation of this specification is proposed that will modify the international agreement concerned, the preparing activity will take appropriate action through international standardization channels, including departmental standardization offices, to change the agreement or make other appropriate accommodations. See MIL-H-89201A.

6.6 Subject term (key word) listing.

Bathymetry
Charting
Defense Mapping Agency (DMA)
Hydrography
Marine
Maritime
MC&G (Mapping, Charting and Geodesy)
Nautical
Navigation

6.7 Changes from previous issue. Marginal notations are not used in this detail specification to identify changes with respect to the previous issue of Table I to MIL-H-89201 due to the extensiveness of the changes.

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Culture (1)
SUBCATEGORY: Miscellaneous Features (1L)
*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

1L020 BUILT-UP AREA
AREA

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	R-2021
BAC	BUILT-UP AREA CLASSIFICATION	R-2474
DFS	DISTANCE FROM SHORELINE	
LEN	LENGTH /DIAMETER	
WID	WIDTH	

Inclusion Conditions:

BAC(BUILT-UP AREA CLASSIFICATION) 1(SPARSE TO MODERATE) or 2(DENSE)
and area >= 6.25 mm square (map scale)
and DFS(DISTANCE FROM SHORELINE) <= 9,997 m

POINT

Attributes		PG Rules
ARA	AREA COVERAGE ATTRIBUTE	-None
BAC	BUILT-UP AREA CLASSIFICATION	
DFS	DISTANCE FROM SHORELINE	
LEN	LENGTH /DIAMETER	

Inclusion Conditions:

BAC(BUILT-UP AREA CLASSIFICATION) 1(SPARSE TO MODERATE) or 2(DENSE)
and area < 6.25 mm square (map scale)
and DFS(DISTANCE FROM SHORELINE) <= 9,997 m

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

1R030 NAVAIDS (AERONAUTICAL)
POINT

Attributes		PG Rules
DFS	DISTANCE FROM SHORELINE	L-4722
EXS	EXISTENCE CATEGORY	L-4782
NST	RADIO NAVIGATION /COMMUNICATION	
RGE	TRANSMITTER EFFECTIVE RANGE	

Inclusion Conditions:

NST(RADIO NAVIGATION/COMMUNICATIONS) 2(CONSOL) or 17(NON-DIRECTIONAL RADIOBEACON (NDB))
and RGE(TRANSMITTER EFFECTIVE RANGE) >= 50 nautical miles
and EXS(EXISTENCE CATEGORY) 33(CONTINUOUS OPERATION)
and DFS(DISTANCE FROM SHORELINE) <= 9,997 m

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

1T080 TOWER (COMMUNICATION)
POINT

Attributes		PG Rules
NST	RADIO NAVIGATION /COMMUNICATION	D-7011
		L-4722
		L-4737
		T-0824

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Culture (1)
SUBCATEGORY: Communication /Transmission (1T)

1T080 TOWER (COMMUNICATION) (Cont.)
POINT

Inclusion Conditions:

NST(RADIO NAVIGATION/COMMUNICATION) 2(CONSOL) or 3(DECCA) or 7(LORAN) or 8(OMEGA)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2A010 COASTAL SHORELINE
LINE

Attributes		PG Rules
ACC	ACCURACY CATEGORY	D-7010
SLT	SHORELINE TYPE CATEGORY	R-1200
VDC	VERTICAL DATUM CATEGORY	R-2738

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2A020 FORESHORE
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	R-2825
LOC	LOCATION /ORIGIN CATEGORY	R-2826
WID	WIDTH	R-3708

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 8(AT SHORELINE)
and width >= 0.5 mm (map scale)
OR LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)
and length >= 3 mm (map scale)

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	R-2825
LOC	LOCATION /ORIGIN CATEGORY	R-2911
		R-3708
		R-3709

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)
and length < 3 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2A040 OPEN WATER (EXCEPT INLAND)
AREA

Attributes	PG Rules
NO ATTRIBUTE REQUIRED	O-3407
	O-3435
	R-2870
	R-2871

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Coastal Hydro (2A)

2A040 OPEN WATER (EXCEPT INLAND) (Cont.)
AREA

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2C010 BUOY
POINT

Attributes		PG Rules	PG Rules	PG Rules
BF1	BROADCAST FREQUENCY (1)	D-7013	L-4841	R-2849
BF2	BROADCAST FREQUENCY (2)	L-4709	L-4843	R-2884
BR1	BEACON RANGE (1)	L-4711	L-4844	R-2885
BR2	BEACON RANGE (2)	L-4737	L-4846	R-2886
CHA	LIGHT CHARACTERISTIC CATEGORY	L-4759	L-4850	R-2887
COL	CHARACTER OF LIGHT	L-4761	L-4853	R-2993
LVR	LIGHT VISIBILITY RANGE	L-4766	L-4875	R-2997
MLR	MULTIPLE LIGHT RANGES	L-4835	O-3414	S-1403
NAM	NAME CATEGORY	L-4836	R-2295	T-0845
RA1	RADIO AID (1)	L-4840		
RA2	RADIO AID (2)			
SSC	STRUCTURE SHAPE CATEGORY			

Inclusion Conditions:

SSC(STRUCTURE SHAPE CATEGORY) 90(SUPERBUOY(ODAS)) or 91(SUPERBUOY (LANBY)) or 93(LIGHTSHIP)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2C030 ELECTRONIC BEACON
POINT

Attributes		PG Rules	PG Rules
BF1	BROADCAST FREQUENCY (1)	D-7013	L-4853
BF2	BROADCAST FREQUENCY (2)	L-4737	O-3400
BR1	BEACON RANGE (1)	L-4783	O-3414
BR2	BEACON RANGE (2)	L-4835	T-0806
RA1	RADIO AID (1)	L-4836	T-0854
RA2	RADIO AID (2)	L-4844	T-0855
		L-4850	

Inclusion Conditions:

RA1(RADIO AID (1)) 17(CIRCULAR RADIOBEACON (RC)) or 48(AERONAUTICAL RADIOBEACON, NON-DIRECTIONAL (AERO RC)) or 49(RADIOBEACON, TYPE UNKNOWN (R BN)) or 51(CONSOL)
OR RA2(RADIO AID (2)) 17(CIRCULAR RADIOBEACON (RC)) or 48(AERONAUTICAL RADIOBEACON, NON-DIRECTIONAL (AERO RC)) or 49(RADIOBEACON, TYPE UNKNOWN (R BN)) or 51(CONSOL)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2C050 LIGHT
POINT

Attributes		PG Rules	PG Rules	PG Rules
BF1	BROADCAST FREQUENCY (1)	D-7013	L-4836	L-4876
BF2	BROADCAST FREQUENCY (2)	L-4711	L-4840	O-3400
BR1	BEACON RANGE (1)	L-4737	L-4841	O-3414
BR2	BEACON RANGE (2)	L-4759	L-4843	R-2295
COL	CHARACTER OF LIGHT	L-4760	L-4844	R-2849
EXS	EXISTENCE CATEGORY	L-4761	L-4850	R-2884
HLT	HYDROGRAPHIC LIGHT TYPE	L-4762	L-4853	R-2887
LVR	LIGHT VISIBILITY RANGE	L-4783	L-4858	T-0821

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Navaids (2C)

2C050 LIGHT (Cont.)
POINT

Attributes		PG Rules	PG Rules	PG Rules
MLR	MULTIPLE LIGHT RANGES	L-4835	L-4875	T-0853
RA1	RADIO AID (1)			
RA2	RADIO AID (2)			

Inclusion Conditions:

HLT(HYDROGRAPHIC LIGHT TYPE) 0(UNKNOWN) or 1(SECTORED LIGHT) or 2(OTHER) or 6(LIGHTED BEACON)
and LVR(LIGHT VISIBILITY RANGE) >= 15 nautical miles
and EXS(EXISTENCE CATEGORY) 33(CONTINUOUS OPERATION)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D000 MISCELLANEOUS UNDERWATER FEATURE
AREA

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	L-4700	O-3411
DAT	DATE CATEGORY	L-4702	R-2221
DDA	DESCRIPTION OF DANGER	L-4707	R-2222
EXS	EXISTENCE CATEGORY	L-4708	R-2800
HDI	HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4722	R-2806
HDP	HYDROGRAPHIC DEPTH	L-4729	R-2916
LEN	LENGTH /DIAMETER	L-4730	R-3704
SFC	SEA FLOOR FEATURE CATEGORY	L-4807	R-3708
VDC	VERTICAL DATUM CATEGORY	L-4808	
VDR	VERTICAL DATUM RECORD		
WID	WIDTH		

Inclusion Conditions:

SFC(SEA FLOOR FEATURE CATEGORY) 1(UNKNOWN (OBSTRUCTION)) or 2(OTHER) or 3(FISH HAVEN)
and length >= 4 mm (map scale)

POINT

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1909	L-4691
DAT	DATE CATEGORY	L-4700	O-3411
DDA	DESCRIPTION OF DANGER	L-4702	R-2221
EXS	EXISTENCE CATEGORY	L-4707	R-2222
HDI	HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4708	R-2806
HDP	HYDROGRAPHIC DEPTH	L-4722	R-2916
LEN	LENGTH /DIAMETER	L-4729	R-3704
SFC	SEA FLOOR FEATURE CATEGORY	L-4730	R-3708
VDC	VERTICAL DATUM CATEGORY	L-4808	R-3709
VDR	VERTICAL DATUM RECORD	L-4872	S-1401
WID	WIDTH		

Inclusion Conditions:

SFC(SEA FLOOR FEATURE CATEGORY) 1(UNKNOWN (OBSTRUCTION)) or 2(OTHER) or 3(FISH HAVEN)
and length < 4 mm (map scale)
OR SFC(SEA FLOOR FEATURE CATEGORY) 4(WELL) or 5(SUBMERGED PRODUCTION PLATFORM)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Dangers and Underwater Features (2D)
*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D010 BREAKERS
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	L-4705
LOC	LOCATION /ORIGIN CATEGORY	L-4722
		R-2800
		R-2911

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 8(AT SHORELINE)
and length >= 5 mm (map scale)

POINT

Attributes		PG Rules
ACC	ACCURACY CATEGORY	L-4700
DAT	DATE CATEGORY	L-4706
EXS	EXISTENCE CATEGORY	L-4707
LEN	LENGTH /DIAMETER	L-4708
LOC	LOCATION /ORIGIN CATEGORY	L-4722
		L-4730
		L-4808
		O-3411
		S-1404

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)
OR LOC(LOCATION/ORIGIN CATEGORY) 8(AT SHORELINE)
and length < 5 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D030 DISCOLORED WATER
AREA

Attributes		PG Rules
ACC	ACCURACY CATEGORY	L-4700
DAT	DATE CATEGORY	L-4707
EXS	EXISTENCE CATEGORY	L-4708
LEN	LENGTH /DIAMETER	L-4722
		L-4730
		L-4808
		O-3411
		R-2287
		R-2911
		R-3708

Inclusion Conditions:

Length >= 4 mm (map scale)

POINT

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	L-4700	L-4809
DAT	DATE CATEGORY	L-4707	O-3411
EXS	EXISTENCE CATEGORY	L-4708	R-2287
LEN	LENGTH /DIAMETER	L-4722	R-2911
		L-4730	R-3708
		L-4808	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Dangers and Underwater Features (2D)

2D030 DISCOLORED WATER (Cont.)
POINT

Inclusion Conditions:

Length < 4 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D050 FOUL GROUND
AREA

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	L-4700	L-4807
DAT	DATE CATEGORY	L-4702	L-4808
EXS	EXISTENCE CATEGORY	L-4707	O-3411
HDI	HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4708	R-2221
HDP	HYDROGRAPHIC DEPTH	L-4722	R-2222
LEN	LENGTH /DIAMETER	L-4729	R-2800
VDC	VERTICAL DATUM CATEGORY	L-4730	R-2806
VDR	VERTICAL DATUM RECORD		

Inclusion Conditions:

Length >= 4 mm (map scale)

POINT

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1909	L-4808
DAT	DATE CATEGORY	L-4700	L-4872
EXS	EXISTENCE CATEGORY	L-4702	L-4891
HDI	HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4707	O-3411
HDP	HYDROGRAPHIC DEPTH	L-4708	R-2221
LEN	LENGTH /DIAMETER	L-4722	R-2222
VDC	VERTICAL DATUM CATEGORY	L-4729	R-2806
VDR	VERTICAL DATUM RECORD	L-4730	R-3709
WID	WIDTH		

Inclusion Conditions:

Length < 4 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D110 PLATFORM
POINT

Attributes		PG Rules
CHA	LIGHT CHARACTERISTIC CATEGORY	L-4706
NST	RADIO NAVIGATION /COMMUNICATION	L-4722
		L-4730
		T-0800

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Dangers and Underwater Features (2D)
*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D120 REEF
AREA

Attributes		PG Rules	PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1910	L-4807	R-2221
COD	CERTAINTY OF DELINEATION	L-4700	L-4808	R-2222
DAT	DATE CATEGORY	L-4702	L-4809	R-2802
EXS	EXISTENCE CATEGORY	L-4707	L-4811	R-2806
HDH	HYDROGRAPHIC DRYING HEIGHT	L-4708	L-4813	R-2915
HDI	HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4709	O-3411	R-3708
HDP	HYDROGRAPHIC DEPTH	L-4722	R-2210	R-9040
MCP	MATERIAL COMPOSITION PRIMARY	L-4730	R-2215	
NAM	NAME CATEGORY			
VDC	VERTICAL DATUM CATEGORY			
VDR	VERTICAL DATUM RECORD			
VRC	VERTICAL REFERENCE CATEGORY			

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D130 ROCK
POINT

Attributes		PG Rules	PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1909	L-4763	R-2294
DAT	DATE CATEGORY	L-4700	L-4808	R-2806
EXS	EXISTENCE CATEGORY	L-4702	L-4872	R-2916
HDH	HYDROGRAPHIC DRYING HEIGHT	L-4707	O-3411	R-3707
HDI	HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4708	R-2210	R-3708
HDP	HYDROGRAPHIC DEPTH	L-4709	R-2221	R-3709
MCP	MATERIAL COMPOSITION PRIMARY	L-4722	R-2222	T-0836
NAM	NAME CATEGORY	L-4730		
SOH	SEVERITY OF HAZARD			
VDC	VERTICAL DATUM CATEGORY			
VDR	VERTICAL DATUM RECORD			
VRC	VERTICAL REFERENCE CATEGORY			

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2D180 WRECK
POINT

Attributes		PG Rules	PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1900	L-4730	R-2806
AOO	ANGLE OF ORIENTATION	D-1909	L-4808	R-2916
DAT	DATE CATEGORY	L-4700	L-4809	R-3708
EPA	EXPOSED PORTION ATTRIBUTE	L-4702	L-4872	R-3709
EXS	EXISTENCE CATEGORY	L-4707	L-4891	S-1400
HDI	HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-4708	O-3411	T-0801
HDP	HYDROGRAPHIC DEPTH	L-4722	R-2221	T-0809
LEN	LENGTH /DIAMETER	L-4729	R-2222	T-0810
SOH	SEVERITY OF HAZARD			
VDC	VERTICAL DATUM CATEGORY			
VDR	VERTICAL DATUM RECORD			
VRC	VERTICAL REFERENCE CATEGORY			

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Dangers and Underwater Features (2D)

2D180 WRECK (Cont.)
POINT

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2E010 DEPTH CURVE
LINE

Attributes		PG Rules	PG Rules
ACC	ACCURACY CATEGORY	L-4733	R-2814
CRV	DEPTH CURVE OR CONTOUR VALUE	L-4734	R-2827
UNI	UNITS CATEGORY	L-4776	R-2828
		O-3407	R-2870
		O-3408	R-2871
		O-3421	R-2874
		O-3435	R-2875
		R-2201	R-2876
		R-2812	R-2882
		R-2813	

Inclusion Conditions:

Depth curve interval: 20, 30, 50, 100, 200, 300, 400, 500, 1000 and 2000 meters, or as shown on hydrographic source charts.

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2E020 SOUNDING
POINT

Attributes		PG Rules	PG Rules	PG Rules
ACC	ACCURACY CATEGORY	D-1903	R-2224	R-9021
DAT	DATE CATEGORY	D-1912	R-2807	R-9022
EXS	EXISTENCE CATEGORY	D-1913	R-2863	R-9023
HDH	HYDROGRAPHIC DRYING HEIGHT	L-4700	R-2864	R-9024
HDP	HYDROGRAPHIC DEPTH	L-4702	R-2865	R-9025
SND	SOUNDING CATEGORY	L-4707	R-2867	R-9026
SVC	SOUNDING VELOCITY	L-4708	R-2908	R-9027
VDC	VERTICAL DATUM CATEGORY	L-4710	R-9011	R-9028
VDR	VERTICAL DATUM RECORD	L-4711	R-9012	R-9029
		O-3403	R-9013	R-9030
		O-3405	R-9014	R-9031
		O-3406	R-9015	R-9032
		O-3411	R-9016	R-9033
		O-3438	R-9018	R-9036
		R-2207	R-9019	T-0822
		R-2222	R-9020	T-0823

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Bottom Features (2F)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2F010 BOTTOM CHARACTERISTICS
POINT

Attributes		PG Rules	PG Rules
CSM	SECONDARY MATERIAL CHARACTERISTICS	L-4701	R-2285
MCC	MATERIAL COMPOSITION CHARACTERISTICS	L-4706	R-2815
MCP	MATERIAL COMPOSITION PRIMARY	L-4784	R-2883
MCS	MATERIAL COMPOSITION SECONDARY	R-2282	R-2890
MCU	MATERIAL COMPOSITION UNDERLYING	R-2283	R-2892
TXT	TEXT ATTRIBUTE	R-2284	
UMC	UNDERLYING MATERIAL CHARACTERISTICS		

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2H020 CANAL
LINE

Attributes		PG Rules
EXS	EXISTENCE CATEGORY	L-4702
HDP	HYDROGRAPHIC DEPTH	L-4885
RPA	REQUIRED FOR PORT ACCESS	R-2745
WID	WIDTH	

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 32(NAVIGABLE)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2H075 INLAND SHORELINE
LINE

Attributes		PG Rules
ACC	ACCURACY CATEGORY	D-7010
AHC	ASSOCIATED HYDROGRAPHIC CATEGORY	R-2739
SLT	SHORELINE TYPE CATEGORY	

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2H080 LAKE /POND
AREA

Attributes		PG Rules
HYC	HYDROGRAPHIC CATEGORY	A-0063
LEN	LENGTH /DIAMETER	L-4704
NAM	NAME CATEGORY	L-4709
RPA	REQUIRED FOR PORT ACCESS	L-4722
WID	WIDTH	L-4821
		L-4822
		R-2745
		R-3673

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Inland Water (2H)

2H080 LAKE /POND (Cont.)
AREA

Inclusion Conditions:

RPA(REQUIRED PORT ACCESS) 1(ACCESS REQUIRED)
OR HYC(HYDROGRAPHIC CATEGORY) 8(PERENNIAL/PERMANENT)
and width >= 10 mm (map scale)
OR HYC(HYDROGRAPHIC CATEGORY) 8(PERENNIAL/PERMANENT)
and feature is needed to connect included drainage features

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2H140 RIVER /STREAM
AREA

Attributes		PG Rules
ACC	ACCURACY CATEGORY	D-1911
HYC	HYDROGRAPHIC CATEGORY	L-4770
NAM	NAME CATEGORY	L-4824
RPA	REQUIRED FOR PORT ACCESS	R-2299
SLT	SHORELINE TYPE CATEGORY	R-2745
TID	TIDAL /NON-TIDAL CATEGORY	R-2747
WID	WIDTH	R-3673
		S-1500
		T-0840

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 8(PERENNIAL/PERMANENT)
and WID(WIDTH) >= 1 mm (map scale)

LINE

Attributes		PG Rules
HYC	HYDROGRAPHIC CATEGORY	D-1911
LEN	LENGTH /DIAMETER	L-4743
NAM	NAME CATEGORY	R-2745
RPA	REQUIRED FOR PORT ACCESS	T-0838
WID	WIDTH	T-0839
		T-0840

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 8(PERENNIAL/PERMANENT)
and width < 1 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2I030 LOCK
POINT

Attributes		PG Rules
RPA	REQUIRED FOR PORT ACCESS	L-4823
		R-2371
		R-2745
		R-2935

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Hydrography (2)
SUBCATEGORY: Miscellaneous Inland Water (2I)

2I030 LOCK (Cont.)
POINT

Inclusion Conditions:

RPA(REQUIRED PORT ACCESS) 1(ACCESS REQUIRED)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2J065 ICE SHELF
AREA

Attributes		PG Rules
NO ATTRIBUTE REQUIRED		R-2256 R-2804 R-9037

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

2J100 SNOW FIELD /ICE FIELD
AREA

Attributes		PG Rules
SIC	SNOW /ICE CATEGORY	R-2800
WID	WIDTH	R-9037

Inclusion Conditions:

Width >= 10 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

3A030 SPOT ELEVATION
POINT

Attributes		PG Rules
ACC	ACCURACY CATEGORY	L-4719
ELA	ELEVATION ACCURACY	L-4720
ZVL	Z VALUE	L-4722 L-4737 R-2206 R-2281 R-2896 T-0843

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

4B135 ISLAND
AREA

Attributes		PG Rules
LEN	LENGTH /DIAMETER	L-4704
NAM	NAME CATEGORY	L-4709
WID	WIDTH	R-2736 T-0858

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Physiography (4)
SUBCATEGORY: Landforms (4B)

4B135 ISLAND (Cont.)
AREA

Inclusion Conditions:

Length >= 0.2 mm (map scale)

POINT

Attributes		PG Rules
LEN	LENGTH /DIAMETER	L-4709
NAM	NAME CATEGORY	R-2736
		T-0858

Inclusion Conditions:

Length < 0.2 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

4B180 VOLCANO
AREA

Attributes		PG Rules
ACC	ACCURACY CATEGORY	L-4700
DAT	DATE CATEGORY	L-4707
EXS	EXISTENCE CATEGORY	L-4708
LOC	LOCATION /ORIGIN CATEGORY	L-4709
NAM	NAME CATEGORY	L-4722
		O-3411

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 6(BELOW WATER SURFACE)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A000 ADMINISTRATIVE BOUNDARY
LINE

Attributes		PG Rules
ACC	ACCURACY CATEGORY	L-4707
BST	BOUNDARY STATUS TYPE	L-4713
NM3	NAME 3	L-4746
NM4	NAME 4	L-4879
USE	USE STATUS	R-2497
		R-2801
		R-2836
		R-2838
		R-2844

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL) or 32(INSULAR)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A020 ARMISTICE LINE
LINE

Attributes		PG Rules
NM3	NAME 3	L-4713
NM4	NAME 4	R-2801
		R-2838
		R-2844

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Demarcation (6)
SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

6A020 ARMISTICE LINE (Cont.)
LINE

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A030 CEASE-FIRE LINE
LINE

Attributes		PG Rules
NO ATTRIBUTE REQUIRED		L-4714
		R-2801
		R-2838
		R-2844

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A040 CLAIM LINE
LINE

Attributes		PG Rules
NM3	NAME 3	L-4714
TXT	TEXT ATTRIBUTE	R-2801
		R-2838
		R-2844

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A050 INTERNATIONAL MARITIME BOUNDARY
LINE

Attributes		PG Rules
NM3	NAME 3	L-3803
NM4	NAME 4	R-2756
TXT	TEXT ATTRIBUTE	

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A060 DEFACTO BOUND. /OTHER LINE OF SEPARATION
LINE

Attributes		PG Rules
ACC	ACCURACY CATEGORY	L-4707
NM3	NAME 3	L-4713
NM4	NAME 4	R-2276
TXT	TEXT ATTRIBUTE	R-2801
USE	USE STATUS	R-2838
		R-2844

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Demarcation (6)
SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

6A060 DEFACTO BOUND. /OTHER LINE OF SEPARATION (Cont.)
LINE

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A070 *DEMILITARIZED ZONE*
AREA

Attributes		PG Rules
NO ATTRIBUTE REQUIRED		L-4714 R-2800 R-2801 R-2838 R-2844

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6A170 ZONE OF OCCUPATION
AREA

Attributes		PG Rules
NM3	NAME 3	L-4714 R-2800 R-2801 R-2838 R-2844

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6C035 DIRECTION OF BUOYAGE INDICATOR
POINT

Attributes		PG Rules
DOF	DIRECTION OF FLOW	L-3804 R-2757

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

6C090 MARITIME LIMIT
AREA

Attributes		PG Rules	PG Rules
AOO	ANGLE OF ORIENTATION	L-4008	R-2290
COD	CERTAINTY OF DELINEATION	L-4715	R-2800
HOC	HYDROGRAPHIC ORIGIN CATEGORY	L-4722	R-2985
LEN	LENGTH /DIAMETER	L-4751	R-2987
MLT	MARITIME LIMIT TYPE	L-4752	R-3703
NAM	NAME CATEGORY	L-4753	T-0842
TXT	TEXT ATTRIBUTE		
WID	WIDTH		

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: Demarcation (6)
SUBCATEGORY: Boundaries /Limits /Zones (Hydrographic) (6C)

6C090 MARITIME LIMIT (Cont.)
AREA

Inclusion Conditions:

MLT(MARITIME LIMIT TYPE) 1(OTHER) or 5(UNSURVEYED) or 18(OIL/GAS FIELD)

LINE

Attributes		PG Rules
MLT	MARITIME LIMIT TYPE	L-4714 R-2762

Inclusion Conditions:

MLT(MARITIME LIMIT TYPE) 25(U.S. EXCLUSIVE ECONOMIC ZONE (EEZ))

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

9C040 MAGNETIC DISTURBANCE AREA
AREA

Attributes		PG Rules
COD	CERTAINTY OF DELINEATION	L-4705
VAV	VARIATION ANOMALY VALUE	L-4722 L-4737

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

9D012 MISCELLANEOUS CULTURAL FEATURE
AREA

Attributes		PG Rules
COC	CONSPICUOUS OBJECT CATEGORY	L-4705
NAM	NAME CATEGORY	L-4709
TXT	TEXT ATTRIBUTE	L-4722
WID	WIDTH	

Inclusion Conditions:

Width >= 0.8 mm (map scale)

LINE

Attributes		PG Rules
COC	CONSPICUOUS OBJECT CATEGORY	L-4709
LEN	LENGTH /DIAMETER	L-4743
NAM	NAME CATEGORY	
TXT	TEXT ATTRIBUTE	
WID	WIDTH	

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: HARBOR, APPROACH, AND COASTAL CHARTS (1:1,000,001 & SMALLER)
CATEGORY: General (9)
SUBCATEGORY: Miscellaneous (9D)

9D012 MISCELLANEOUS CULTURAL FEATURE (Cont.)
LINE

Inclusion Conditions:

Width < 0.8 mm
and length >= 0.8 mm (map scale)

POINT

Attributes		PG Rules
COC	CONSPICUOUS OBJECT CATEGORY	L-4709
LEN	LENGTH /DIAMETER	L-4722
NAM	NAME CATEGORY	
TXT	TEXT ATTRIBUTE	

Inclusion Conditions:

Length < 0.8 mm (map scale)

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

9D040 NAMED LOCATION
AREA

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-3608
NAM	NAME CATEGORY	L-3609
PPL	POPULATED PLACE CATEGORY	L-4827
		R-2845

Inclusion Conditions:

All required

LINE

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-3608
NAM	NAME CATEGORY	L-3609
PPL	POPULATED PLACE CATEGORY	L-4827
		R-2845

Inclusion Conditions:

All required

POINT

Attributes		PG Rules
CSI	CATEGORY/SUBCATEGORY INDEX	L-3608
NAM	NAME CATEGORY	L-3609
PPL	POPULATED PLACE CATEGORY	L-4827
		R-2845

TABLE I Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: *HARBOR, APPROACH, AND COASTAL CHARTS* (1:1,000,001 & SMALLER)
CATEGORY: General (9)
SUBCATEGORY: Miscellaneous (9D)

9D040 NAMED LOCATION (Cont.)
POINT

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

9D045 TEXT DESCRIPTION
AREA

Attributes		PG Rules
LAB	LABEL OF THE FEATURE	L-3809
VRC	VERTICAL REFERENCE CATEGORY	L-4893

Inclusion Conditions:

All required

LINE

Attributes		PG Rules
LAB	LABEL OF THE FEATURE	L-3809
VRC	VERTICAL REFERENCE CATEGORY	L-4893

Inclusion Conditions:

All required

POINT

Attributes		PG Rules
LAB	LABEL OF THE FEATURE	L-3809
VRC	VERTICAL REFERENCE CATEGORY	L-4893

Inclusion Conditions:

All required

*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9*HAC 9

APPENDIX A

HARBOR, APPROACH, AND COASTAL CHART (HAC 9) PRODUCT RULES

10. SCOPE

10.1 Scope. This Appendix provides information about the product rules necessary for the production of Harbor, Approach, and Coastal Charts, at scales of 1:1,000,000 and smaller. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation (see 6.2).

MILITARY SPECIFICATIONS

MIL-H-89201A(DMA) - General Military Specification for Harbor, Approach, and Coastal Charts (HAC-All Scales)

MILITARY STANDARDS

MIL-STD-2402(DMA) - MC&G Symbology for Graphic Products
MIL-STD-2403(DMA) - MC&G Product Generation Rules
MIL-STD-2408(DMA) - Glossary of Mapping, Charting & Geodesy Feature and Attribute Definitions

20.2 Order of precedence. In the event of a conflict between the text of this appendix and either Table I of this specification, or MIL-STD-2403 cited above, the Table I and MIL-STD-2403 take precedence.

30. PRODUCT RULES

30.1 Classification of rules. Rules are classified into the following types:

a. Displacement
b. Labeling
c. Override
d. Representation
e. Suppression
f. Thinning

30.2 Appendix organization This appendix lists the rule numbers and rule text for each feature type (area, line and point) of each FACS feature listed in Table I of this specification.

FEATURE: BUILT-UP AREA...1L020 (AREA)

BUILT-UP AREA...1L020 (AREA)

R-2021 If two or more outlined areas merge (coalesce at map scale), they shall be enclosed in a single common area outline. Dividing outlines shall not be shown.

R-2474 Omit Built-up Area outline where coincident with other linear features.

BUILT-UP AREA...1L020 (POINT)

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NAVAIDS (AERONAUTICAL)...1R030 (POINT)

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4782 If NST=002, label "Consol"
If NST=017, label "Aero RC"

TOWER (COMMUNICATION)...1T080 (POINT)

D-7011 A feature with attribute value of COC=002 (Not Conspicuous) shall not displace a feature with attribute value of COC=001 (Conspicuous).

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4737 Feature name /label shall be positioned parallel to lines of latitude and readable left to right.

T-0824 Thinning order with highest priority for retention (a):
(a) Towers associated with electronic navigational overprints (rates). NST=002, 003, 007 and 008 are required if their respective rate is overprinted; i.e., if LORAN rates are overprinted on the chart, then LORAN towers (1T080, NST=007) are required.
(b) When the same type of communications towers (1T080) overprint each other, retain in the following priority:
(1) COC=001
(2) NST=002, 003, 007 and 008, if no electronic rate overprint is shown on chart.
(3) COC=002

COASTAL SHORELINE...2A010 (LINE)

D-7010 Shoreline (2A010 and 2H075) shall be broken for 0.2mm on each side of the following graphic elements:
1U040 Aircraft Facility Beacon, Posicut #199
2C030 Electronic Beacon, Posicut #92
2C050 Light, Posicut #199
2C055 Marker, rectangle
2C060 Visual Beacon, Posicut #85
Shoreline is not broken for other posicuts or labels associated with these symbols. Instead, type shall be placed either in the water or on land, so that it does not cross the shoreline.

FEATURE: COASTAL SHORELINE...2A010 (LINE)

R-1200 Mean High Water (VDC=007) is the prefered vertical datum for shoreline portrayal. When Mean High Water is not available, the shoreline will be delineated by whatever means possible. There may never be a segment of missing shoreline (by definition, the line where a land mass is in contact with a body of open water.

R-2738 For products that portray the vegetation (Category 5) features mangrove (5C030, VEG=019), swamp (5D030), or marsh (5D040), shoreline type SLT=006 (Mangrove) shall be shown when adjacent to mangrove, and SLT=008 (Marsh, Swamp) shown when adjacent to a swamp or marsh. If those vegetation features are not shown on the product, the minimum length of SLT 006 and 008 shall be 20 mm at chart scale.

FORESHORE...2A020 (AREA)

R-2825 Delete dot portion of the symbol that is within 0.5 mm, at chart scale, of the shoreline (2A010 or 2H075).

R-2826 Features with the same code, separated by less than 2 mm at chart scale, shall be combined into one areal feature.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

FORESHORE...2A020 (POINT)

R-2825 Delete dot portion of the symbol that is within 0.5 mm, at chart scale, of the shoreline (2A010 or 2H075).

R-2911 When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

R-3709 The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

OPEN WATER (EXCEPT INLAND)...2A040 (AREA)

O-3407 An inset plan covering an area within a chart is screened to the same depth curve as that used on the chart, regardless of the scale of the plan.

O-3435 The depth curve (2E010) to which a blue water tint is shown is established by a representation rule. If for some reason this specified depth curve is not the curve most significant for navigation in the area, the cartographer shall select the depth curve most significant for navigation, and use that depth curve for blue water tint portrayal.

In some instances, it may be desirable to show two water tints, for example, a Blue 31% tint from the shoreline to the 20 meter depth curve, and a Blue 12% tint from the 20 meter depth curve to the 30 meter depth curve. In this case, a SPC-48253 Blue 31% 45° angle screen is used for the darker tint, and a SPC-48253 Blue 12% 75° angle screen is used for the lighter tint.

When using open window negatives for printing, extending the 12% Blue open window from the second significant depth curve all the way to the shoreline, rather than just to the darker blue tint, will eliminate the potential for a white halo where the two blue screens meet, if registration is not exact.

FEATURE: OPEN WATER (EXCEPT INLAND)...2A040 (AREA)

R-2870 Show water tint (Blue SPC-48253, 31% screen, at 45°) from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas shallower than 30 meters (inside a 30 meter depth curve). Blue tint is deleted from inland hydrographic features (2H), in those areas that are deeper than 30 meters (outside the 30 meter depth curve).

R-2871 Charts in areas recognized as likely routes for supertankers (draft of 18 - 28 meters) shall show water tint from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas inside the 30 meter depth curve. Shipping routes for supertankers are indicated in the IMO Publication Ship's Routeing Manual - Part C "Deep Water Routes", and DMA Sailing Directions.
To further emphasize dangers existing for ships with drafts up to 30 meters, depths of less than 30 meters seaward of the 30 meters depth curve shall carry a blue screen, e.g., single sounding or several soundings in an area. Areas deeper than 30 meters shall not show blue tint.

BUOY...2C010 (POINT)

D-7013 When aids to navigation (2C) overprint hydrographic dangers (2D), or depth curves (2E010), the following displacement criteria applies:
a. If the aid to navigation is a fixed aid (2C030 Electronic Beacon, 2C050 Light, or 2C060 Visual Beacon), and the 2D symbol is a point symbol, delete the 2D point symbol. Show both if the 2D symbol is an area symbol.
b. If the aid to navigation is a buoy (2C010), the 2D symbol's danger curve, i.e., the dotted perimeter line, if present, is broken for the buoy symbol (excluding type).
c. If a point danger symbol contains a central graphic element, such as a + or posicut 104, 110, 114, etc., the buoy symbol is displaced off the danger symbol's centeral graphic element. The displacement shall be as little as possible to resolve the overprint. (For IALA cardinal buoys, see rule D-1914.)
d. The above criteria refers to the graphic portion of symbols only. All type and labels are movable around the graphic elements to avoid overprints. If the 2D symbol's central HDP type must be moved, it shall be placed outside the danger circle, and enclosed in parentheses.
e. Depth Curves (2E010) are broken for aids to navigation and dangers, and the type associated with these symbols.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4711 Strings of windows may be placed on two lines to avoid overprints.

L-4737 Feature name /label shall be positioned parallel to lines of latitude and readable left to right.

L-4759 Yellow, abbreviated "Y", shall be substituted for Orange "Or" or Amber "Am" when describing light color in the Character of Light attribute (COL).

L-4761 If the only light color is white, omit color from COL. e.g., "Fl 6s 12 m 8M" is a white light.

L-4766 The name (NAM) of a buoy (2C010) shall be shown in quotes (i.e., "Heron").

L-4835 If RA1=000 (Unknown) or 050 (None). do not show RA1 label, and do not show Posicut #86 (7.1 mm diameter purple circle).

L-4836 If RA2=000 (Unknown) or 050 (None), do not show RA2 label.

L-4840 If RA1=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF1 is not 000 (Unknown), and BF1 < 285 or BF1 > 325; delete RA1 window and do not show Posicut #86 (7.1 mm diameter purple circle).

L-4841 If RA2=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF2 is not 000 (Unknown), and BF2 < 285 or BF2 > 385, delete RA2 window.

FEATURE: BUOY...2C010 (POINT)

L-4843 If RA1 does not equal an attribute listed for a particular symbol, omit Posicut #86 (7.1 mm diameter purple circle) and the RA1 label.

L-4844 If RA2 does not equal an attribute listed for a particular symbol, omit the RA2 label.

L-4846 If CHA=023 (Unlighted), delete COL, PER, EOL, and LVR windows, and delete Posicut #94 (Light flare posicut).

L-4850 Abbreviations and labels for RA1 and RA2:

If RA1 or RA2 is:
004 Radio Direction Finding Station, abbreviate "RG"
005 Directional Radiobeacon, abbreviate "RD"
010 Racon, label "Racon"
014 Rotating Radiobeacon, abbreviate "RW"
017 Circular Radiobeacon, abbreviate "RC"
045 QTG Station, abbreviate "R"
046 Coast Radar Station, abbreviate "Ra"
047 Ramark, label "Ramark"
048 Aeronautical Radiobeacon, Non-directional, abbreviate "Aero RC"
049 Radiobeacon, Type Unknown, abbreviate "R Bn"
051 Consol, label "Consol"

L-4853 If there is only one radio aid at a feature, it shall take its value from the RA1 attribute and RA2 shall have the value 050 (None).

L-4875 If there is more than one visibility range at a light, the attribute MLR is used in place of LVR attribute.

O-3414 Shown only electronic aids with ranges (BR1 and BR2) of 25 miles or greater and which have frequencies (BF1 or BF2) of 285 to 325 kHz.

R-2295 If a radio aids circle (Posicut #86) is shown on a symbol, it shall be centered on the origin of the symbol. Since they are a different color, TMC topmark posicuts may overprint the radio aid circle. The radar reflector (Posicut #93), if shown, shall be positioned outside the radio aids circle, preferably near the top of the symbol. The fog signal (Posicut #59), if shown, shall preferably be positioned concentric with the radio aids circle, with its middle arc even with the radio aids circle, which may be broken for 0.2 mm on both sides of the fog signal posicut. The fog signal posicut may be shown in any direction from the navigational aid, to avoid overprints, or moved completely outside the radio aids circle, if necessary.

R-2849 Light flares (Posicut No. 94) shall be oriented in order as follows:
(1) So that it does not overprint on the feature or a legend associated with that feature (except for the 7.1 mm diameter circle representing a radio aid to navigation, which the flare may overprint).
(2) So it does not overprint other chart data (i.e., soundings, pipelines, submarine cables, etc.)
(3) So that the wide end of the flare is pointed toward the legend of the light, or to seaward along the line, in the case of clearing lines (2C020), and clearing lines (2C040).

R-2884 The point of the light flare (Posicut No. 94) shall be 1 mm from the dot or small circle representing the position of the feature.

R-2885 Seasonal buoys shall be shown without mention of their seasonal nature.

R-2886 The slope of a buoy (2C010), which is normally 25° from vertical, may be varied from 5° to 45° from vertical to avoid overprints.

R-2887 Reserve fog signals shall not be shown on product.

R-2993 If SSC=090 (Superbuoy: ODAS) or 091 (Superbuoy: LANBY), do not show feature on charts at scales smaller than 1:750,000 (HAC 8-9) if feature is within 120 miles of land.

FEATURE: BUOY...2C010 (POINT)

R-2997 If SSC is: Use Posicut:
080 Pillar Buoy (Open), use Posicut #150
081 Pillar Buoy (Filled), use Posicut #151
082 Pillar Buoy (Vertical Stripes), use Posicut #152
083 Spar Buoy, use Posicut #153
084 Can Buoy (Open), use Posicut #154
085 Can Buoy (Filled), use Posicut #155
086 Cone Buoy (Open), use Posicut #156
087 Cone Buoy (Filled), use Posicut #157
088 Spherical Buoy (Vertical Stripes), use Posicut #158
089 Spherical Buoy, use Posicut #159
090 Superbuoy (ODAS), use Posicut #160
091 Superbuoy (LANBY), use Posicut #162
092 Superbuoy (Tanker), use Posicut #161
093 Lightship , use Posicut #162
094 Lightfloat (Open), use Posicut #163
095 Barrel/Tonne Buoy, use Posicut #164
096 Mooring Buoy, use Posicut #165
097 Diamond Shaped Buoy, use Posicut # 167
102 Lightfloat (Filled), use Posicut #219

S-1403 If a channel is marked by a feature but because of the product scale individual features overprint or are closer than 3 mm, replace the features with the legend "Buoyed channel" (for 2C010) or "Channel marked by beacons" (for 2C060). Legend will be aligned with the channel.

T-0845 If superbuoys (2C010, SSC=090 (Superbuoy-ODAS), 091 (Superbuoy-LANBY), 092 (Superbuoy-Tanker), 093 (Lightship), 094 (Lightfloat-Open), or 102 (Lightfloat-Filled)) overprint other buoys (2C010 with other SSC values), thin by first deleting buoys other than those with SSC values of 090 throught 094, or 102).

ELECTRONIC BEACON...2C030 (POINT)

D-7013 When aids to navigation (2C) overprint hydrographic dangers (2D), or depth curves (2E010), the following displacement criteria applies:
a. If the aid to navigation is a fixed aid (2C030 Electronic Beacon, 2C050 Light, or 2C060 Visual Beacon), and the 2D symbol is a point symbol, delete the 2D point symbol. Show both if the 2D symbol is an area symbol.
b. If the aid to navigation is a buoy (2C010), the 2D symbol's danger curve, i.e., the dotted perimeter line, if present, is broken for the buoy symbol (excluding type).
c. If a point danger symbol contains a central graphic element, such as a + or posicut 104, 110, 114, etc., the buoy symbol is displaced off the danger symbol's centeral graphic element. The displacement shall be as little as possible to resolve the overprint. (For IALA cardinal buoys, see rule D-1914.)
d. The above criteria refers to the graphic portion of symbols only. All type and labels are movable around the graphic elements to avoid overprints. If the 2D symbol's central HDP type must be moved, it shall be placed outside the danger circle, and enclosed in parentheses.
e. Depth Curves (2E010) are broken for aids to navigation and dangers, and the type associated with these symbols.

L-4737 Feature name /label shall be positioned parallel to lines of latitude and readable left to right.

L-4783 Label placement hierarchy:
(1) On land, one line,
(2) On land, two lines, word spellings not split.
(3) In water, one line.

L-4835 If RA1=000 (Unknown) or 050 (None). do not show RA1 label, and do not show Posicut #86 (7.1 mm diameter purple circle).

L-4836 If RA2=000 (Unknown) or 050 (None), do not show RA2 label.

L-4844 If RA2 does not equal an attribute listed for a particular symbol, omit the RA2 label.

FEATURE: ELECTRONIC BEACON...2C030 (POINT)

L-4850 Abbreviations and labels for RA1 and RA2:

If RA1 or RA2 is:
004 Radio Direction Finding Station, abbreviate "RG"
005 Directional Radiobeacon, abbreviate "RD"
010 Racon, label "Racon"
014 Rotating Radiobeacon, abbreviate "RW"
017 Circular Radiobeacon, abbreviate "RC"
045 QTG Station, abbreviate "R"
046 Coast Radar Station, abbreviate "Ra"
047 Ramark, label "Ramark"
048 Aeronautical Radiobeacon, Non-directional, abbreviate "Aero RC"
049 Radiobeacon, Type Unknown, abbreviate "R Bn"
051 Consol, label "Consol"

L-4853 If there is only one radio aid at a feature, it shall take its value from the RA1 attribute and RA2 shall have the value 050 (None).

O-3400 If an electronic beacon (2C030) is within 2 mm, at chart scale, of a light (2C050, HLT=000, 001, or 002), the electronic beacon shall not be shown and the light shall be changed to include the electronic beacon as a part of the light. The RA1 and RA2 attributes of the electronic beacon (2C030) will be added to the RA1 and RA2 attributes of the light (2C050). The electronic beacon and the light are not combined if the light is a moire effect light (HLT=003) or a strip light (HLT=004). In this case, show both the light and the electronic beacon as separate symbols.

O-3414 Shown only electronic aids with ranges (BR1 and BR2) of 25 miles or greater and which have frequencies (BF1 or BF2) of 285 to 325 kHz.

T-0806 Delete electronic navigation beacons (RA1 or RA2) with a range (BR1 or BR2) less than 50 nautical miles.

T-0854 If RA1=005 (Directional Radiobeacon), 014(Rotating Radiobeacon), 017(Circular Radiobeacon), 048(Aeronautical Radiobeacon-Non-directional), 049(Radiobeacon, type unknown), or 51(Consol), and the broadcast frequency (BF1) is known (not equal to 000), but BF1 < 285 kHz or BF1 > 325 kHz, do not show the feature.

T-0855 If RA2=005 (Directional Radiobeacon), 014(Rotating Radiobeacon), 017(Circular Radiobeacon), 048(Aeronautical Radiobeacon, Non-directional), 049(Radiobeacon, type unknown), or 51(Consol), and the broadcast frequency (BF2) is known (not equal to 000), but BF2 < 285 kHz or BF2 > 325 kHz, do not show the RA2 portion of the feature.

LIGHT...2C050 (POINT)

D-7013 When aids to navigation (2C) overprint hydrographic dangers (2D), or depth curves (2E010), the following displacement criteria applies:
a. If the aid to navigation is a fixed aid (2C030 Electronic Beacon, 2C050 Light, or 2C060 Visual Beacon), and the 2D symbol is a point symbol, delete the 2D point symbol. Show both if the 2D symbol is an area symbol.
b. If the aid to navigation is a buoy (2C010), the 2D symbol's danger curve, i.e., the dotted perimeter line, if present, is broken for the buoy symbol (excluding type).
c. If a point danger symbol contains a central graphic element, such as a + or posicut 104, 110, 114, etc., the buoy symbol is displaced off the danger symbol's centeral graphic element. The displacement shall be as little as possible to resolve the overprint. (For IALA cardinal buoys, see rule D-1914.)
d. The above criteria refers to the graphic portion of symbols only. All type and labels are movable around the graphic elements to avoid overprints. If the 2D symbol's central HDP type must be moved, it shall be placed outside the danger circle, and enclosed in parentheses.
e. Depth Curves (2E010) are broken for aids to navigation and dangers, and the type associated with these symbols.

L-4711 Strings of windows may be placed on two lines to avoid overprints.

L-4737 Feature name /label shall be positioned parallel to lines of latitude and readable left to right.

FEATURE: LIGHT...2C050 (POINT)

L-4759 Yellow, abbreviated "Y", shall be substituted for Orange "Or" or Amber "Am" when describing light color in the Character of Light attribute (COL).

L-4760 When more than one light (2C050) is at the same point, the information about those lights shall be listed, one above the other, in the order that they appear in the DMA Light List. Only one Light flare and light dot shall be shown to represent those lights.

When there is no room to stack the light legends (for example, if a legend overprints other information, features, or text), the legends may be listed horizontally (or horizontally and stacked if more than two) separated by a comma(s). They shall be listed in order of range, as they appear in the DMA Light List.

L-4761 If the only light color is white, omit color from COL. e.g., "F1 6s 12 m 8M" is a white light.

L-4762 A light with two ranges (MLR) shall be displayed separated by a slash, e.g., 14/12M. A light with more than two ranges shall have the greatest and least ranges separated by a hyphen, e.g., 22-18M.

L-4783 Label placement hierarchy:
(1) On land, one line,
(2) On land, two lines, word spellings not split.
(3) In water, one line.

L-4835 If RA1=000 (Unknown) or 050 (None). do not show RA1 label, and do not show Posicut #86 (7.1 mm diameter purple circle).

L-4836 If RA2=000 (Unknown) or 050 (None), do not show RA2 label.

L-4840 If RA1=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF1 is not 000 (Unknown), and BF1 < 285 or BF1 > 325; delete RA1 window and do not show Posicut #86 (7.1 mm diameter purple circle).

L-4841 If RA2=005 (Directional Radiobeacon), 014 (Rotating Radiobeacon), 017 (Circular Radiobeacon), 048 (Aeronautical Radiobeacon, Non-directional), or 049 (Radiobeacon, Type Unknown), and BF2 is not 000 (Unknown), and BF2 < 285 or BF2 > 385, delete RA2 window.

L-4843 If RA1 does not equal an attribute listed for a particular symbol, omit Posicut #86 (7.1 mm diameter purple circle) and the RA1 label.

L-4844 If RA2 does not equal an attribute listed for a particular symbol, omit the RA2 label.

L-4850 Abbreviations and labels for RA1 and RA2:

If RA1 or RA2 is:
004 Radio Direction Finding Station, abbreviate "RG"
005 Directional Radiobeacon, abbreviate "RD"
010 Racon, label "Racon"
014 Rotating Radiobeacon, abbreviate "RW"
017 Circular Radiobeacon, abbreviate "RC"
045 QTG Station, abbreviate "R"
046 Coast Radar Station, abbreviate "Ra"
047 Ramark, label "Ramark"
048 Aeronautical Radiobeacon, Non-directional, abbreviate "Aero RC"
049 Radiobeacon, Type Unknown, abbreviate "R Bn"
051 Consol, label "Consol"

L-4853 If there is only one radio aid at a feature, it shall take its value from the RA1 attribute and RA2 shall have the value 050 (None).

L-4858 When LVR or has a known value and it is not zero (0), the numerical value for LVR shall be immediately followed by a capital letter "M" printed in the same type as LVR (i.e., 10 M). When no light range is shown, do not show the "M".

FEATURE: LIGHT...2C050 (POINT)

L-4675 If there is more than one visibility range at a light, the attribute MLR is used in place of LVR attribute.

L-4676 The MLR label (i.e., 21-15 or 12/15) shall be shown in place of the LVR label on the symbology if there is more than one visibility at a light.

O-3400 If an electronic beacon (2C030) is within 2 mm, at chart scale, of a light (2C050, HLT=000, 001, or 002), the electronic beacon shall not be shown and the light shall be changed to include the electronic beacon as a part of the light. The RA1 and RA2 attributes of the electronic beacon (2C030) will be added to the RA1 and RA2 attributes of the light (2C050). The electronic beacon and the light are not combined if the light is a moire effect light (HLT=003) or a strip light (HLT=004). In this case, show both the light and the electronic beacon as separate symbols.

O-3414 Shown only electronic aids with ranges (BR1 and BR2) of 25 miles or greater and which have frequencies (BF1 or BF2) of 285 to 325 kHz.

R-2295 If a radio aids circle (Posicut #86) is shown on a symbol, it shall be centered on the origin of the symbol. Since they are a different color, TMC topmark posicuts may overprint the radio aid circle. The radar reflector (Posicut #93), if shown, shall be positioned outside the radio aids circle, preferably near the top of the symbol. The fog signal (Posicut #59), if shown, shall preferably be positioned concentric with the radio aids circle, with its middle arc even with the radio aids circle, which may be broken for 0.2 mm on both sides of the fog signal posicut. The fog signal posicut may be shown in any direction from the navigational aid, to avoid overprints, or moved completely outside the radio aids circle, if necessary.

R-2849 Light flares (Posicut No. 94) shall be oriented in order as follows:
(1) So that it does not overprint on the feature or a legend associated with that feature (except for the 7.1 mm diameter circle representing a radio aid to navigation, which the flare may overprint).
(2) So it does not overprint other chart data (i.e., soundings, pipelines, submarine cables, etc.)
(3) So that the wide end of the flare is pointed toward the legend of the light, or to seaward along the line, in the case of clearing lines (2C020), and clearing lines (2C040).

R-2884 The point of the light flare (Posicut No. 94) shall be 1 mm from the dot or small circle representing the position of the feature.

R-2887 Reserve fog signals shall not be shown on product.

T-0821 Omit lights (2C050) with ranges (LVR) less than 15 miles, unless the light is an offshore aid (on islet, rock, etc.), or the light is farther than 10 miles from a light with a range (LVR) greater than 15 miles, or the light has a radio navigation aid on it.

T-0853 When two lights (2C050) have the dot (Posicut #199) overprinting or spaced closer than 2 mm, delete the light with the least range (LVR). If the two lights form a clearing line (2C020) or leading line (2C040), show both characteristics, in a combined legend, for example: "2FR" for two fixed red lights", or "OcR & Oc" for an occulting red light and an occulting white light.

MISCELLANEOUS UNDERWATER FEATURE...2D000 (AREA)

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (AREA)

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4729 If symbols overprint each other, labels are condensed as follows:
(1) If the labels are identical, only one is retained.
(2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4807 Type shall be placed in the following preference:
(a) Placed on one horizontal line centered in feature.
(b) Broken into multiple horizontal lines, centered in feature, with a 1 mm space between lines.
(c) Placed on one line outside feature. Use Rule L-4722 for placement. If present, HDP shall always be positioned inside area.
(d) Placed on two lines to avoid overprints. Use Rule L-4722 for placement. If present, HDP shall always be placed inside area.

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (AREA)

R-2221 HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.
HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).
HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).
HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).
HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2800 When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

R-2806 If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

R-2916 Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.

R-3704 HDI=010 (Depth Known by Wire Drag) is not applicable when SFC=003 (Fish Haven).

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

MISCELLANEOUS UNDERWATER FEATURE...2D000 (POINT)

D-1909 If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (POINT)

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4729 If symbols overprint each other, labels are condensed as follows:
(1) If the labels are identical, only one is retained.
(2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

L-4872 HDP label shall be centered in the circle.

L-4891 Variable type size for HDP values enclosed by danger curves (dotted circles): If HDP < 10, (a single digit principal digit), apply 7 point type to the principal digit, and 5 point type to the subscript, if there is one. If HDP >= 10 (a double digit principal digit), apply 6 point type to the principal digit, and 5 point type to the subsript, if there is one.

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2221 HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.
HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).
HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).
HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).
HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

FEATURE: MISCELLANEOUS UNDERWATER FEATURE...2D000 (POINT)

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2806 If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

R-2916 Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.

R-3704 HDI=010 (Depth Known by Wire Drag) is not applicable when SFC=003 (Fish Haven).

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

R-3709 The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

S-1401 When two or more point obstruction (2D000, SFC=001) symbols, (dotted lines) overprint, and the attribute values are identical, one symbol shall be placed in the center of the group and shall be labeled with the number of obstructions in the group, e.g., 2 Obstr's, 3 Obstr's, etc. Type is 6 point Swiss 742 italic, in color Black SPC-58600.

BREAKERS...2D010 (AREA)

L-4705 Labeling areas, in order of preference:
(1) Centered in area on one line in the area, type is horizontal, reading left to right.
(2) Centered in area on one line in the area, oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
(3) Centered in area on two approximately equal lines, without splitting a word, type is horizontal, reading left to right.
(4) Centered on two approximately equal lines without splitting a word, type is oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
(5) Use Rule L-4722 for type placement if the area is too small to place the type inside the area.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

R-2800 When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

R-2911 When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.

BREAKERS...2D010 (POINT)

FEATURE: BRBAKERS...2D010 (POINT)

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4706 If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

S-1404 If two or more point breakers (2D010) fall within 15 mm of each other, show one symbol in the center of the group.

DISCOLORED WATER...2D030 (AREA)

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

FEATURE: DISCOLORED WATER...2D030 (AREA)

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2287 Discolored water (2D030) shall not be placed on a chart unless circumstances indicate the probable existence of shoal water.

R-2911 When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

DISCOLORED WATER...2D030 (POINT)

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

FEATURE: *DISCOLORED WATER...2D030 (POINT)*

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

L-4809 When two or more identical features fall within 10 mm of each other, one legend with plural description shall be shown, with type placed as close as possible to the center of the group without overprinting features.

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2287 Discolored water (2D030) shall not be placed on a chart unless circumstances indicate the probable existence of shoal water.

R-2911 When two or more identical symbols overprint each other, delete the portions that overlap and show as one symbol with an outline of the combined area of the symbols.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

FOUL GROUND...2D050 (AREA)

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

FEATURE: FOUL GROUND...2D050 (AREA)

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4729 If symbols overprint each other, labels are condensed as follows:
(1) If the labels are identical, only one is retained.
(2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4807 Type shall be placed in the following preference:
(a) Placed on one horizontal line centered in feature.
(b) Broken into multiple horizontal lines, centered in feature, with a 1 mm space between lines.
(c) Placed on one line outside feature. Use Rule L-4722 for placement. If present, HDP shall always be positioned inside area.
(d) Placed on two lines to avoid overprints. Use Rule L-4722 for placement. If present, HDP shall always be placed inside area.

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2221 HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.
HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).
HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).
HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).
HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

FEATURE: FOUL GROUND...2D050 (AREA)

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2800 When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

R-2806 If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

FOUL GROUND...2D050 (POINT)

D-1909 If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4729 If symbols overprint each other, labels are condensed as follows:
(1) If the labels are identical, only one is retained.
(2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

L-4872 HDP label shall be centered in the circle.

L-4891 Variable type size for HDP values enclosed by danger curves (dotted circles): If HDP < 10, (a single digit principal digit), apply 7 point type to the principal digit, and 5 point type to the subscript, if there is one. If HDP >= 10 (a double digit principal digit), apply 6 point type to the principal digit, and 5 point type to the subsript, if there is one.

FEATURE: FOUL GROUND...2D050 (POINT)

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2221 HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.
HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).
HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).
HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).
HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2806 If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

R-3709 The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

PLATFORM...2D110 (POINT)

L-4706 If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

FEATURE: PLATFORM...2D110 (POINT)

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

T-0800 If Platforms (2D110) <= 3 mm apart at chart scale:
HAC 1 & 2 - Do not thin.
HAC 3 - use one symbol to represent three.
HAC 4 - use one symbol to represent five.
HAC 5 - use one symbol to represent seven.
HAC 6 - use one symbol to represent eight.
HAC 7 - 9 - (a) use most seaward platforms only (b) include all platforms seaward of the 30 meter depth curve (2E010).
Thinning hierarchy by order of omission:
(1) CHA=023
(2) CHA=023, NAM, SST
(3) CHA=023, NST=010
(4) CHA=023, NAM, NST=010, SST
(5) CHA=021
(6) CHA=021, NAM, SST
(7) CHA 021, NST=010
(8) CHA 021, NAM, NST=010, SST
Thin #1 first, #2 second, etc, if they are all #8 select those around the perimeter to help define the limits of the field.

REEF...2D120 (AREA)

D-1910 If rock symbol (point 2D130) is shown inside a reef symbol (area 2D120) overprints the shoreline (2A010 or 2H075), displace the rock symbol seaward, so that it no longer overprints the shoreline. If necessary, displace the dotted perimeter line of the reef seaward, so it does not overprint the rock symbol.

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

FEATURE: REEF...2D120 (AREA)

L-4807 Type shall be placed in the following preference:
(a) Placed on one horizontal line centered in feature.
(b) Broken into multiple horizontal lines, centered in feature, with a 1 mm space between lines.
(c) Placed on one line outside feature. Use Rule L-4722 for placement. If present, HDP shall always be positioned inside area.
(d) Placed on two lines to avoid overprints. Use Rule L-4722 for placement. If present, HDP shall always be placed inside area.

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

L-4809 When two or more identical features fall within 10 mm of each other, one legend with plural description shall be shown, with type placed as close as possible to the center of the group without overprinting features.

L-4811 The drying height (HDH) shall be shown if it is known, for reefs that uncover (2D120, VRC=008). Type shall be placed over the highest point of the reef, if possible. If the reef is too small to place HDH inside the area, it shall be placed alongside the area in parentheses. If "Co" is required by symbol, MCP=019, type shall be positioned under HDH.

L-4813 Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2210 Rocks (2D130, MCP=066) and isolated coral heads (2D130, MCP=019) within submerged reefs (2D120) shall be charted using the appropriate rock symbol. When depths over selected rocks are shown, an overall depth over the reef is not required, since the depth over the reef is shown by the depth of the shallowest rock. Where it is not possible to chart depth information for separate rocks, the shallowest depth over the reef shall be shown by HDP or HDH on reef (2D120).

R-2215 Symbol consists of arcs and Vs along the area perimeter. If the reef edge symbol overprints the shoreline, the symbol is deleted for that section that overprints.

FEATURE: REEF...2D120 (AREA)

R-2221 HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.
HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).
HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).
HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).
HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2802 Where symbols with the same feature code but different values of VRC are adjacent to each other, the boundary of the feature that is the highest in the vertical plane shall be shown, and the boundary of the feature that is lower shall be deleted. For example, the feature above water is shown whole, while the feature that covers and uncovers has that portion of its symbol perimeter that overprints the higher feature deleted

R-2806 If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

R-2915 The minimum size of a reef (2D120) that covers and uncovers (VRC=008) shall be 2 mm diameter. The minimum size of a reef that is under water (VRC=004) shall be 3 mm. If the reef at chart scale is smaller than these minimum sizes, it shall be shown as a rock (2D130).

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

R-9040 If a hole exists inside of an area feature, and the width of the hole is greater than 3 mm at chart scale, the hole is shown as an open space inside the surrounding feature. If the hole is 3 mm wide or less, the hole is deleted and absorbed into the surrounding area feature.

ROCK...2D130 (POINT)

D-1909 If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.

L-4700 *Use the following abbreviations for ACC and EXS values:*
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

FEATURE: ROCK...2D130 (POINT)

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4763 The MCP label for rock (MCP=066) shall be "R", and the label for coral (MCP=019) shall be "Co" Labels are shown without quote marks, or periods.

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

L-4872 HDP label shall be centered in the circle.

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2210 Rocks (2D130, MCP=066) and isolated coral heads (2D130, MCP=019) within submerged reefs (2D120) shall be charted using the appropriate rock symbol. When depths over selected rocks are shown, an overall depth over the reef is not required, since the depth over the reef is shown by the depth of the shallowest rock. Where it is not possible to chart depth information for separate rocks, the shallowest depth over the reef shall be shown by HDP or HDH on reef (2D120).

FEATURE: ROCK...2D130 (POINT)

R-2221 HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.
HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).
HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).
HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).
HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2294 Submerged rocks (2D120, VRC=004) with known depths (HDI=009 or 010) of 30.0 meters or less are considered dangerous (SOH=001) if the depth (HDP) of the rock is shallower than the corresponding depth area, as defined by the adjacent depth curves. They are considered not dangerous (SOH=002) if the depth of the rock falls within the corresponding depth area. For example, on a chart showing 10, 20, and 30 meter depth curves, a rock with a depth of12.0 meters would be considered dangerous (SOH=001) if it fell in between the 20 and 30 meter depth curves, but would be considered not dangerous (SOH=002) if it fell between the 10 and 20 meter depth curves.

R-2806 If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

R-2916 Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.

R-3707 If an uncovering rock (2D130, VRC=008) falls inside the foreshore (2A020), show the rock center symbol without the blue tint or dotted circle.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

R-3709 The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

T-0836 When central graphic symbols of hydrographic dangers, excluding the danger curve (dotted line) overprint or coalesce, they shall be thinned, with preference given to retaining those dangers with the shallower depth (HDP), if it is known. Danger curves shall not be affected by this rule.

WRECK...2D180 (POINT)

D-1900 If two graphic interior point symbols (HDI=012 and SOH=001) or (VRC=001 or 008, and EPA=001, 002 or 005) overprint, displace both symbols outward until they no longer overprint.

FEATURE: WRECK...2D180 (POINT)

D-1909 If point symbol overprints shoreline (2A010 or 2H075), the HDP type, posicut, or graphic in the center of symbol shall be displaced seaward until they no longer overprint the shoreline. If the danger curve (dotted perimeter line) overprints the shoreline, that portion of the dotted perimeter line falling on land shall be deleted.

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4729 If symbols overprint each other, labels are condensed as follows:
(1) If the labels are identical, only one is retained.
(2) If the labels are not identical, they shall be condensed in to one legend, e.g., "Fishhaven and Well". If multiple depths are shown, only the shallowest is retained.

L-4730 Labels may be stacked, readable top to bottom to avoid overprints, e.g.:
Hydro
power
plant

L-4808 Labels shall be placed in water area, and shall not overprint the shoreline (2A010 or 2H075) or be placed on land or in the foreshore (2A020).

L-4809 When two or more identical features fall within 10 mm of each other, one legend with plural description shall be shown, with type placed as close as possible to the center of the group without overprinting features.

L-4872 HDP label shall be centered in the circle.

L-4891 Variable type size for HDP values enclosed by danger curves (dotted circles): If HDP < 10, (a single digit principal digit), apply 7 point type to the principal digit, and 5 point type to the subscript, if there is one. If HDP >= 10 (a double digit principal digit), apply 6 point type to the principal digit, and 5 point type to the subsript, if there is one.

FEATURE: WRECK...2D180 (POINT)

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

R-2221 HGT is used to describe height when feature is above the surface of the water at High Water (VRC=001). HDI is not applicable when VRC=001.
HDI values 000, 009, 010, 011, 012 are used to describe knowledge about a depth of a feature when the feature is below the water surface (VRC=004).
HDI values 013 and 014 are used to describe knowledge about the drying height of a feature when it covers and uncovers, i.e., between high and low water (VRC=008).
HDP is used to record the depth of a feature when HDI=009, 010 or 011. HDP is not applicable when the depth is unknown (HDI=000 or 012) or when the feature covers and uncovers (VRC=008) - see HDH, or when the feature is above High Water (VRC=001).
HDH is used to record the drying height of a feature when HDI=013. HDH is not applicable when the drying height is unknown (HDI=014), or the feature is below water (VRC=004) - see HDP, or when the feature is above High Water (VRC=001).

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2806 If areas where separate dangers coalesce because of scale, the danger curves (dotted lines) are deleted except for those on the outermost perimeter of the aggregate danger hazard. A smooth dotted line is drawn around the area.

R-2916 Dangers with danger curves (dotted lines) around them which fall inside other danger areas with danger curves around them, shall have the inner dotted line deleted.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

R-3709 The diameter of the circular symbol perimeter line may be reduced in congested areas to avoid overprinting other symbols, but must be at least 2.0 mm diameter, and cannot come closer than 0.2 mm to any type or graphic symbol shown inside the circle. In non-congested areas the normal symbol diameter shall be shown.

S-1400 When two or more stranded wreck symbols (2D180, EPA=003 or 004) overlap, one symbol shall be placed in the center of the group and shall be labeled with the number of stranded wrecks in the group, e.g., "2 Wrecks", "3 Wrecks", etc. Type is Swiss 742 italic, 6 point, in color Black SPC-58600.

FEATURE: WRECK...2D180 (POINT)

T-0801 If more than five wrecks (2D180), other than stranded (VRC=001 or 008), fall within an area less than 20 mm x 20 mm, individual wreck symbols are not shown. Instead, a generalized danger line (dotted line) shall be shown surrounding the area, and the area shall be labeled as follows: "Numerous wrecks", "Numerous Wks", "Wks" Condense label as necessary to place it inside the danger line. Type is Swiss 742, 6 point upper and lower case italic, in color Black SPC-58600.

T-0809 Delete wrecks (2D180) inside the 30 meter depth curve (2E010, CRV=30) contiguous to the shoreline (2A010 or 2H075).

T-0810 Where two or more wrecks (2D180), except stranded wrecks (VRC=001 or 008), overprint each other:
(1) If only the danger lines (dotted lines) overprint, delete the danger lines that are inside the outer perimeter danger lines.
(2) If two HDP depths overprint, retain the shallowest depth and the danger line surrounding the wrecks.

DEPTH CURVE...2E010 (LINE)

L-4733 Depth curves (2E010) shall be labeled with the numeral in the same unit of measurement as the soundings (2E010). The term "meters" shall not be part of the label.

L-4734 Depth Curve (2E010) labels:
(1) Break curve the width of the label plus 1 mm on each side. Orient label parallel to curve, centered in window, readable left to right, or bottom to top, if curve is vertical.
(2) Start labels at the middle of the curve, space every 12 cm. Labels may be moved any distance to avoid overprints, except on a closed curve where an overprint cannot be avoided. If the overprint is another Depth Curve, break the curve. Label every curve at least once if length of curve is 10 mm greater than window and does not close.

L-4776 Depth curves (2E010) which surround a single sounding (2E020) shall not be labeled if the length of the depth curve is less than 20 mm.

O-3407 An inset plan covering an area within a chart is screened to the same depth curve as that used on the chart, regardless of the scale of the plan.

O-3408 When accurate depth curves (2E010, ACC=001) taken directly from source charts are shown on a product that has been enlarged by a factor greater than two, compared to the scale of the source chart, e.g., 1:50,000 source on a product larger than 1:25,000, the depth curve's accuracy shall be ACC=002. When approximate depth curves (2E010, ACC=002) taken directly from source charts are shown on a product that has been reduced by a factor greater than two compared to the source source chart, e.g., 1:50,000 source on a product smaller than 1:100,000, the depth curve accuracy shall be ACC=001. When depth curves taken from source charts are enlarged or reduced by a factor equal to or less than two, they shall retain the same accuracy as the source chart.

O-3421 If other curves are selected for portrayal (based on published source material), use the CRV values that are equal to the values of the curves on the source material.

FEATURE: DEPTH CURVE...2E010 (LINE)

O-3435 The depth curve (2E010) to which a blue water tint is shown is established by a representation rule. If for some reason this specified depth curve is not the curve most significant for navigation in the area, the cartographer shall select the depth curve most significant for navigation, and use that depth curve for blue water tint portrayal.

In some instances, it may be desirable to show two water tints, for example, a Blue 31% tint from the shoreline to the 20 meter depth curve, and a Blue 12% tint from the 20 meter depth curve to the 30 meter depth curve. In this case, a SPC-48253 Blue 31% 45° angle screen is used for the darker tint, and a SPC-48253 Blue 12% 75° angle screen is used for the lighter tint.

When using open window negatives for printing, extending the 12% Blue open window from the second significant depth curve all the way to the shoreline, rather than just to the darker blue tint, will eliminate the potential for a white halo where the two blue screens meet, if registration is not exact.

R-2201 The depth curve (2E010) to which water tint is shown may be interpolated from soundings shown on nautical chart sources in order to develop the required open water blue tint. If this is done the curve shall be approximate (ACC=002). For depth curves other than this curve, Rule R-2876 shall apply.

R-2812 In delineating depth curves (2E010), the line shall be positioned as near as possible to the deeper side of the sounding value without touching. The depth curve shall not be broken for the Sounding value.

R-2813 Depth curves (2E010) that coalesce on steep slopes shall show only the deepest and shoalest curves. Where space is limited in "steep to channels" portrayal of the deepest curve is preferred. In other general areas where space is limited because of scale, the shoalest curve shall be shown with the deep curves broken. Where a blue tint invades a steep slope, the curve delimiting the blue tint must be shown.

R-2814 Small depressions within shallow areas shall not be surrounded by a depth curve (2E010) if less than three soundings (2E020) fall within the curve.

R-2827 When published nautical charts in meters are used as source material for DMA charts, the DMA charts shall retain the depth curves (2E010) shown on the published chart source. Occasionally foreign sources will portray soundings(2E020) which are the same value as the depth curve seaward of the depth curve. In this event, the depth curve is broken and a dashed approximate curve (2E010, ACC=002) is extended seaward around the sounding(s).

R-2828 Foreign charts showing soundings and depth curves in fathoms, that are used as source material for nautical charts, shall have the sounding converted to meters, and have the depth curves converted to meters as follows:

-1 fathom curve shall be retained, and labeled 2
-3 fathom curve shall be retained, and labeled 5.

This policy shall be followed only when the soundings seaward of the curve are greater than the value of the curve. When the above conversion is not practical, an approximate depth curve (2E010, ACC=002) shall be delineated and dashed (approximate) lines displayed. Indefinite (approximate) depth curves shall replace fathom curves of depths other than above.

R-2870 Show water tint (Blue SPC-48253, 31% screen, at 45°) from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas shallower than 30 meters (inside a 30 meter depth curve). Blue tint is deleted from inland hydrographic features (2H), in those areas that are deeper than 30 meters (outside the 30 meter depth curve).

FEATURE: DEPTH CURVE...2E010 (LINE)

R-2871 Charts in areas recognized as likely routes for supertankers (draft of 18 - 28 meters) shall show water tint from the shoreline (2A010 or 2H075) to the 30 meter depth curve (2E010, CRV=030) and all offshore areas inside the 30 meter depth curve. Shipping routes for supertankers are indicated in the IMO Publication Ship's Routeing Manual - Part C "Deep Water Routes", and DMA *Sailing Directions*.
To further emphasize dangers existing for ships with drafts up to 30 meters, depths of less than 30 meters seaward of the 30 meters depth curve shall carry a blue screen, e.g., single sounding or several soundings in an area. Areas deeper than 30 meters shall not show blue tint.

R-2874 If the shoal sounding (2E020) and selected depth curves (2E010) will adequately portray a danger, it is not necessary for the complete sequence of depth curves to be shown around an isolated pinnacle.

R-2875 Accurate depth curves (2E010, ACC=001) shall be shown when the sounding data from which they are interpolated has a density of <= 10 mm maximum spacing, at the product chart scale before soundings have been thinned. When this sounding density is > 10 mm maximum spacing, any interpolated depth curves *shall be approximate* (ACC=002).

R-2876 In areas of the chart where the primary source of hydrographic data is a foreign nautical chart, and that foreign chart does not show any depth curves, depth curves (2E010) shall not be interpolated, and soundings (2E020) alone shall be used to depict the bottom topography.

R-2882 In rapidly changing areas where surveys with different dates adjoin but do not agree, gaps in depth curves (2E010) shall be left to indicate data discrepancy to the user. Gap width shall be commensurate with chart scale and the area covered by the sources.

SOUNDING...2E020 (POINT)

D-1903 *Soundings shall normally be plotted in their true positions. If a selected* sounding overprints other important detail, such as aids to navigation (2C) or dangers (2D), a different sounding is selected, if possible. If the selected sounding is the shallower than any other sounding around it, it must be shown. In this case, it is shown as an "out of position" sounding and a leader line is used to show *the true position of the sounding. Leader line* shall be 3-25 mm in length.

D-1912 Soundings (2E020) shall be displaced seaward when they overprint the shoreline (2A010 or 2H075) until they no longer overprint.

D-1913 If a channel (deep area between two shallow areas) is too narrow to place a sounding (2E020) in, and the sounding is the shallowest depth in the channel between the two shallow areas, place the sounding alongside the channel, in *parentheses*.

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4710 Strings of windows shall be placed on one line, reading left to right, or bottom to top if the axis is vertical.

L-4711 Strings of windows may be placed on two lines to avoid overprints.

FEATURE: SOUNDING...2E020 (POINT)

O-3403 If soundings (2E020) shown on a DMA product chart are taken from a graphic source chart/survey that has been enlarged by a factor greater than two, for example, soundings on a 1:50,000 source chart shown on a DMA chart at a scale larger than 1:25,000, then those soundings shall be shown as slant soundings (SND=001 shall be shown as SND=008, SND=002 shall be shown as SND=009, SND=006 shall be shown as SND=004, and SND=007 shall be shown as SND=010).

When this override occurs, the chart shall show the following note, wording as appropriate, in the margin of the chart. See "Notes and Cautions" section of product specification for information regarding note portrayal.

NOTE
Soundings in slant figures are from smaller scale charts.

O-3405 Some foreign charting agencies (and the IHO standard) use vertical (upright hairline) type for questionable soundings and slant type for normal soundings. This is the opposite of what DMA and NOS show on U.S. charts. When a sounding (2E020) is shown as a slant type sounding on a source, but that source was produced by a charting agency that uses slanted type to show normal soundings, the sounding type on the DMA chart shall be vertical, i.e., SND=006 (Ordinary), SND=001 (Drying Height-Vertical), SND=002 (No Bottom-Vertical), or SND=007 (Doubtful-Vertical).

O-3406 Sounding data that is unreliable, based on notes or cautions on the source material, or some other information known to the compiler, shall be attributed to show slanted or italic type (2E020, SND=004, 008, 009, or 010), depending on the type of sounding. A note explaining the reason for the slant soundings shall be given in the margin or land area. See "Notes and Cautions" section of product specifications.

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

O-3438 If a chart shows a mixture of soundings (2E020) from different sources that utilize different vertical (sounding/hydrographic) datums, the sounding datum quoted in the margin of the chart shall be the highest of the datums used.

R-2207 Soundings (2E020) that are 200 meters deep or deeper shall be corrected for sound velocity using NP-139 Tables (SVC=003). Sound velocity measurements (SVC=004) shall be used in place of NP-139 Tables if they are considered more reliable than the averaged values shown in the NP-139 Tables. Soundings that are less than 200 meters deep shall be corrected for sound velocity using sound velocity measurements (SVC=004) if data is available. If it is not possible to correct soundings for sound velocity, and assumed speeds of sound are used (SVC=000, 001 or 002), uncorrected soundings are identified in the source diagram.

FEATURE: SOUNDING...2E020 (POINT)

R-2222 VDC is used to record the sounding datum to which a hydrographic depth (HDP), drying height (HDH), or the high water datum to which a safe overhead clearance (SOC) is referenced. If the hydrographic depth (HDP), drying height (HDH), or safe overhead clearance (SOC) is unknown or not applicable, VDC is not applicable. VDR is used to record the name of the vertical datum when VDC is 023 (Other). VDR is not applicable "NA" when VDC is any value except 023.

R-2224 HDH is used when SND=001 (Drying Height), or 008 (Drying Height (Slant)). HDP is used for all other values of SND.

R-2807 The rounding off of decimeters between 21 and 30.5 meters shall be as follows:
Decimeters between 3 and 7 shall be shown as 5, e.g., depths from 21.3 through 21.7 shall be shown as 21.5. Decimeters 1, 2, 8, and 9, shall be rounded off to the nearest meter, e.g., 21.1 and 21.2 shall be shown as 21, and 21.8 and 21.9 shall be shown as 22.

R-2863 Sounding density shall be greatest (6 mm - 15 mm average spacing) between the 30 meter depth curve (2E010, CRV=030, UNI=013) and the 50 meter depth curve (2E010, CRV=050, UNI=013), and for all isolated shoals less than 30 meters deep (see Rule T-0822). In areas outside the 50 meter depth curve, sounding density shall be in accordance with Rule T-0822.

R-2864 Areas with soundings shallower than the depth range of maximum density that are not contiguous to the shoreline shall show a sounding density of <= 10 mm average spacing.

R-2865 In well surveyed areas, where sounding density on the source is <= 5 mm average spacing, sounding density shall be > 20 mm average spacing and depth curves (2E010) relied on to portray the bottom topography.

R-2867 In areas where depth information is inadequate on large scale charts, small scale charts of the same areas shall show a markedly uneven spacing for soundings.

R-2908 The position of a sounding (2E020) on a DMA or NOS chart is the center of mass of the principal digit, excluding the subscript. Soundings on foreign source material do not necessarily show the center of mass of the principal digit as the position of the sounding. The standard practice of the charting authority that produced the source shall be followed to determine the position of the sounding on the foreign source.

R-9011 CONTROLLING DEPTHS OF CHANNELS: A sounding (2E020) shall be shown to indicate the controlling depth of a natural channel. The controlling depth of a channel is the least depth in the shallowest part of a natural channel, analoguos to the highest point in a pass between two mountains.

R-9012 DEEPEST PATH ALONG A NATURAL CHANNEL: A line of soundings (2E020) is shown to indicate the deepest water through a natural channel, analogous to the lowest part of a valley floor.

R-9013 SOUNDINGS ALONG TRACKS AND ROUTES: A line of soundings (2E020) should be shown along tracks that ships must follow, such as a leading line (2C040), radar guided track (6C130), or route (6C165). If no soundings exits directly along the track, the closest ones shall be shown.

R-9014 DEEPS: Deep soundings (2E020) should be shown. Deep are local lows; soundings that are deeper than surrounding soundings. Soundings that are approximately 20% or more deeper than the surrounding soundings are considered important. Soundings between 10% and 20% deeper than surrounding soundings may be important, depending on the characteristics of the bottom, for example, in flat areas.

R-9015 SOUNDINGS AT CHANGES IN SLOPE: Soundings (2E020) shall be shown to indicate significant changes of slope of the bottom. Soundings that are more than 5% shallower than the surface interpolated from surrounding shoals, deeps, depth curves (2E010), and other soundings (2E020), should be shown. Soundings that are more than 10% deeper than the surface interpolated from surrounding shoals, deeps, depth curves and other soundings should also be shown.

FEATURE: SOUNDING...2E020 (POINT)

R-9016 SOUNDINGS NEAR DEPTH CURVES: Soundings (2E020) shown close to depth curves (2E010), i.e., closer than 25 mm, serve to support the depth curve, especially when there is no depth curve label nearby, or for short depth curves that do not have a label. Depth curves (2E010) showing long, narrow extentions of deeper water into shallow water from the depth curve's normal smoothed curve should be supported by soundings along and near the end of the extension, if there is space, without soundings overprinting depth curves.

R-9018 SOUNDINGS IN DANGEROUS AREAS: As scale is reduced from the source to the product chart, soundings (2E020) may be omitted between groups of rocks (2D130) or reefs (2D120), when there is no well defined passage between them, or if detail has been generalized in the area. Where there is a well defined passage through the dangerous area, soundings should be shown.

R-9019 SOUNDINGS CLOSE TO AND THE SAME VALUE AS A DEPTH CURVE: Soundings (2E020) that are the same value of the depth curve (2E010) on the shallow side of the curve, and soundings that are only one unit (fathom or meter) deeper than the curve and shown on the deeper side of the depth curve, should not be shown if they are closer than 3 mm to the depth curve, because they do not contribute any useful information to the mariner.

R-9020 NO BOTTOM SOUNDINGS: No bottom soundings (2E020, SND=002) should be shown only if no other sounding data is available within 30 mm at chart scale.

R-9021 Fill soundings (2E020) shall be shown in flat or deep areas between shoals. Fill soundings are shown in a somewhat regular pattern of less dense (15 to 30 mm spacing) soundings that do not have significant changes in slope.

R-9022 Soundings 2E020 that are the least depths in proximity to known or potential navigational routes are placed very close together to increase the amount of detail presented to the chart user. They should not generally be placed closer than about 6 mm at chart scale.

R-9023 Soundings (2E020) in shoal areas, natural channels and hazardous areas should be sufficiently close together so these areas are highlighted by a dense pattern of soundings. Sounding spacing should be 10 to 15 mm. Soundings around a shoal should be less than 10 mm spacing.

R-9024 In areas where depth curves (2E010) are less than 10 mm apart, the number of soundings (2E020) should be reduced, because the function of showing the shape of the bottom has been taken over by the depth curves. Significant deviations (5% higher or 10% lower) from the slope indicated by the depth curves must still be shown by soundings.

R-9025 A least depth sounding (2E020) must be shown for each shoal on the chart. When selecting soundings from larger scale source for inclusion on a smaller scale product, it may become necessary to generalize a series of shoals into one shoal. When this is required, the shallowest sounding from the group is selected to represent the least depth over the generalized shoal.

R-9026 If two adjacent shoal soundings (2E020) have the same depth (HDP), the one shown first is the one closest to the nearest or most prominent navigational route.

R-9027 For any group of soundings (2E020) with equal depth values (HDP), the most seaward one is shown. The most seaward sounding is the one closest to the deeper depth curve (2E010), or closest to the next deeper sounding.

R-9028 If two shoal soundings (2E020) of equal depth (HDP) are found in an isolated shoal area (shallow area surrounded by a depth curve that closes on itself), the farthest seaward of equal shoal soundings must be shown.

R-9029 If a shoal sounding (2E020) is at the same depth as a depth curve (HDP of 2E020 = CRV of 2E010), the depth curve is shown around the sounding. If two or more soundings have the same depth as the depth curve, the curve is shown around all of them. Additional deeper soundings at 10 or 15 mm spacing are shown outside the depth curve to indicate the slope of the sea bottom around the shoal.

FEATURE: SOUNDING...2E020 (POINT)

R-9030 Deep soundings (2E020) that are shown, but not surrounded by a depth curve (2E010), should be surrounded by a group of irregularly spaced soundings. Soundings shown around deeps should be spaced at a greater distance than for a comparably sized shoal, i.e., 15 to 20 mm.

R-9031 The structure of natural channels should be shown by a pattern of soundings (2E020) with enough density to delineate both the width and the depth of the navigable portion. Selected soundings must be the least depth in the immediate area they are to represent.

R-9032 When soundings (2E020) from a recent survey reveal that a satisfactory junction between the new data and existing data cannot be made, a blank band approximately 5 mm wide at chart scale should be left around the limits of the more recent survey. A note should be shown stating that hydrography is from an older survey. Example: "Hydrography to eastward is from surveys in 1934"

R-9033 All hydrographic detail may be removed from certain areas undergoing continual and rapid change, such as ocean inlets and openings between barrier islands if showing soundings (2E020) is considered to present an unsafe representation between chart editions. The area shall be tinted with blue tint (see Rules R-2869 to R-2871 as applicable to the specific product). A note should be shown stating that hydrography is under continual change: for example: "Area of continuous change"

R-9036 SHOALS: All shoal soundings (2E020) must be shown. A shoal sounding is a local high; a sounding that is shallower than any other sounding around it. Shoal soundings may be placed very close together, but generally not less than 6 mm spacing. The density of soundings shown around shoals should be increased to less than 15mm spacing, so the increased density of soundings draw attention to the presence of the shoal.

T-0822 Soundings (2E020) are thinned according to the following hierarchy. Those soundings at the top of the list are deleted last, and those soundings at the bottom of the list are deleted first. See the referenced representation rules for more information about each category of sounding.

1. Controlling depths (see R-9011)
2. The deepest path along a navigable channel (see R-9012)
3. Soundings along tracks and routes (see R-9013)
4. Deeps (see R-9014)
5. Soundings at changes of slopes (see R-9015)
6. Soundings supporting depth curves (see R-9016)
7. Soundings in slips and around piers (see R-9017)
8. Soundings other than 1-7 above
9. Soundings inside dangerous areas (see R-9018)
10. Soundings close to and the same value as a depth curve (see R-9019)
11. No bottom soundings (see R-9020)

T-0823 Soundings (2E020) shown on smaller scale charts in an area shall be a subset selected from those soundings shown on larger scale charts in the area.

BOTTOM CHARACTERISTICS...2F010 (POINT)

FEATURE: BOTTOM CHARACTERISTICS...2F010 (POINT)

L-4701 Abbreviations for Bottom Characteristics are:

For the material (MCP, MCS, MCU)

000-Unknown no abbreviation, drop window if material is unknown or not present.

001-Ash Ash
006-Boulders Bo
011-Chalk Ck
012-Cinders Cn
013-Cirripedia Cir
014-Clay Cy
016-Cobble Cb
019-Coral Co
020-Coral Head Co Hd
022-Diatoms Di
027-Foraminifera Fr
028-Fucus Fu
033-Globigerina Gl
034-Grass Grs
035-Gravel G
037-Ground Gd
043-Lava Lv
045-Madrepores Md
046-Manganese Mn
047-Marl Ml
049-Mattes Ma
052-Mud M
053-Mussels Ms
055-Ooze Oz
056-Oysters Oy
058-Pebbles P
059-Polyzoa Po
061-Pteropods Pt
062-Pumice Pm
063-Quartz Qz
064-Radiolaria Rd
066-Rock R
069-Sand S
070-Schist Sch
071-Scoria Sc
072-Sea Tangle Stg
073-Seaweed Wd
074-Shells Sh
075-Shingles Sn
076-Silt Si
081-Spicules Spi
082-Sponge Sp
086-Stones St
090-Tufa T

For the characteristic of the material (MCC, CSM, UMC)

000-unknown no abbreviation, drop window when material characteristic is unknown.

009-broken bk
010-calcareous ca
015-coarse c
021-decayed dec
025-fine f
026-flinty fly
032-glacial ga
036-gritty gty
038-ground grd
039-hard h
042-large l
066-rocky rky
067-rotten rt
078-small sm
079-soft so
080-speckled spk
084-sticky sy

FEATURE: BOTTOM CHARACTERISTICS...2F010 (POINT)

085-stiff	sf
087-streaky	str
089-tenacious	ten
091-uneven	unev
093-varied	vard
094-volcanic	v
100-medium	m

If UMC=000 and MCU=000, delete the slash between MCS and UMC.

L-4706 If the attribute value is not known, or the attribute value for none or not applicable, delete window and condense remaining windows.

L-4784 String of windows shall be placed horizontally on one line.

R-2282 The mobile bottom (2F010, MCC=051) sand wave symbol should be used primarily in close association with the most significant soundings (2E020), usually the shallowest sounding in each area of mobile bottom/sand waves area. The use of the sandwave symbol draws attention to the most significant depths, and also indicates the degree of unreliability of the figure charted.

R-2283 When frequently repeated surveys show some variation in least depth soundings (2E020) within areas of sandwaves (2F010, MCC=051), the shallowest one found over a period of years should be charted. This blending of details of surveys from different dates must be carried out with care; In particular, long term deepening over time must not be overlooked.

R-2284 The extent of mobile bottom/sandwave areas (2F010, MCC=051), if know and considered navigationally significant, may be indicated by the legend "Sandwaves" The legend should be placed over areas where the depths may be critical to surface navigation, and used in conjunction with the sandwave symbol associated with the most significant soundings. Type style for the legend is 6 point U/L italic. Color is Black SPC-58600 solid.

R-2285 Areas of sandwave/mobile bottom (2F010, MCC=051) shown on the chart are further explained by the following Caution, shown in the margin. See Notes and Cautions section of product specifications.

CAUTION
Sandwaves build up during particular states of weather and tide. Surveys may not have been made in those conditions, so the chart may not show the minimum depths possible.

R-2815 A particular bottom characteristic (2F010) should not be deleted unless it is the same as one within 50 mm. A particular bottom characteristic shall be deleted if it is the same as another bottom characteristic located within 50 mm of it. Bottom characteristics should not be displaced from their original positions just to show them below soundings. They may be displaced up to 5 mm from their original position to avoid overprinting other point symbols.

R-2883 Where the underlying material is known to differ from the surface layer, the symbol window string for the surface layer (MCC and MCP) and the symbol window string of the underlayer (UMC and MCU) shall be written in that order, on one line, separated by a slash "/". If UMC or MCU is unknown, delete those window(s) and the slash.

R-2890 Where mixtures of materials occur, the symbol window string of the predominant material (MCC, MCP) shall be shown first, followed by the symbol window string of the secondary material (CSM, MCS), on one line, separated by a space. If no secondary material is present delete windows for CSM and MCS. If a third characteristic/material is present in the mixture, this is shown by the TXT label, using the standard abbreviations in rule L-4701; otherwise TXT is not shown.

R-2892 In water deeper than 100 meters, only show primary material composition (MCP) of bottom characteristics (2F010). Bottom characteristics shall be shown, if known, on all shoals and in anchorage areas (2B010). Elsewhere they shall be selected to show variations in the composition of the seabed. In uniform areas, bottom characteristics shall be shown at an approximately 50 mm interval, if data is available.

FEATURE: CANAL...2H020 (LINE)

CANAL...2H020 (LINE)

L-4702 Show HDP or HDH value in whole meters if decimeter value is 0; otherwise show the decimeter value as a subscript to the meter value.

L-4885 If the controlling depth (HDP) is unknown, delete the legend "Controlling Depth (HDP)m"

R-2745 A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

INLAND SHORELINE...2H075 (LINE)

D-7010 Shoreline (2A010 and 2H075) shall be broken for 0.2mm on each side of the following graphic elements:
1U040 Aircraft Facility Beacon, Posicut #199
2C030 Electronic Beacon, Posicut #92
2C050 Light, Posicut #199
2C055 Marker, rectangle
2C060 Visual Beacon, Posicut #85
Shoreline is not broken for other posicuts or labels associated with these symbols. Instead, type shall be placed either in the water or on land, so that it does not cross the shoreline.

R-2739 Inland shoreline (2H075) shall only be included if its associated inland hydrographic feature is included on the product.

LAKE /POND...2H080 (AREA)

A-0063 Include if feature needed to connect included drainage features (2H).

L-4704 Type size per area size at map /chart scale:
06 point - WID < 14 mm and LEN < 55 mm
08 point - WID >= 14 mm and < 28 mm; LEN >= 55 mm and < 82 mm
10 point - WID >= 28 mm and < 44 mm; LEN >= 82 mm and < 118 mm
12 point - WID >= 44 mm and < 62 mm; LEN >= 118 mm and < 158 mm
14 point - WID >= 62 mm and < 84 mm; LEN >= 158 mm and < 198 mm
16 point - WID >= 84 mm and < 104 mm; LEN >= 198 mm and < 240 m
18 point - WID >= 104 mm and LEN >= 240 mm
Where WID and LEN measurements are inconsistent, the larger type size shall be used.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

FEATURE: LAKE /POND...2H080 (AREA)

L-4821 Descriptive type or name shall be positioned in the following priority:
(1) Horizontal within area feature, if the type will fit entirely within the area. If type consists of more than one word, it may be split into several lines if necessary.
(2) Use Rule L-4722 if type will not fit in area.

L-4822 If width < 30 mm at chart scale, do not show name.

R-2745 A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

R-3673 Do not show land tint in the symbol. If attribute HYC is present, do not show land tint if *HYC=008 (Perennial)*.

RIVER /STREAM...2H140 (AREA)

D-1911 If a conspicuous (COC=001) point symbol coalesces (less than 0.2mm from) with a line symbol, or the boundary of an area symbol, the line or area boundary is displaced around the conspicuous point symbol. If a non-conspicuous (COC=002) point symbol coalesces (less than 0.2mm away from) with a line symbol or boundary of an area symbol, the non-conspicuous point symbol is displaced away from the line or area boundary symbol until it no longer coalesces.

L-4770 Labeling areas based on width:

Type Size:	If Width Is:
08 point	< 8 mm
10 point	>= 8 mm < 18 mm
12 point	>= 18 mm < 30 mm
14 point	>= 30 mm

Type is centered in area and repeated every 10 cm.

L-4824 Name shall be positioned in the center of that part of a feature appearing on a chart, i.e., centered from bank to bank, and centered from mouth to neatline. Type shall run parallel to center line, reading left to right, or bottom to top if feature is vertical. Type may be moved sideways to avoid overprints or sharp bends (>= 5°).

R-2299 Rivers (2H140) under the influence of the rise and fall of the tide (TID=002) shall have their banks delineated at the high water line. Inland of tidal influence (TID=001), average water level shall be shown for perennial rivers (HYC=008), and flood stage shall be shown for intermittent (HYC=006), or dry (HYC=003) rivers.

FEATURE: RIVER /STREAM...2H140 (AREA)

R-2745 A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

R-2747 Where area features transition to line features, for example, where an area river changes to a line river, the minimum width area symbol shall be tapered to a point so that it transitions smoothly into a line symbol.

R-3673 Do not show land tint in the symbol. If attribute HYC is present, do not show land tint if HYC=008 (Perennial).

S-1500 Symbolize the casement portions (Left Bank / Right Bank) of the feature using the ACC and SLT attributes of the individual river or canal banks in conjunction with the inland shoreline (2H075) symbology. The AHC attribution of the inland shoreline (2H075) shall correspond to the HYC attribution of the associated water body as follows: HYC 008 = AHC 001, HYC 006 = AHC 002, and HYC 003 = AHC 003.

T-0840 Streams shall only be shown to the limits of relief (3A010).

RIVER /STREAM...2H140 (LINE)

D-1911 If a conspicuous (COC=001) point symbol coalesces (less than 0.2mm from) with a line symbol, or the boundary of an area symbol, the line or area boundary is displaced around the conspicuous point symbol. If a non-conspicuous (COC=002) point symbol coalesces (less than 0.2mm away from) with a line symbol or boundary of an area symbol, the non-conspicuous point symbol is displaced away from the line or area boundary symbol until it no longer coalesces.

L-4743 If feature type is linear, the label hierarchy is:
(1) Label shall be placed 1 mm above feature, centered.
(2) Top of label shall be placed 1 mm below feature, centered.
(3) Label may be displaced along the feature; use two labels if feature length 150 mm or greater.
(4) Do not label across shoreline (2A010 or 2H075).

R-2745 A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

FEATURE: RIVER /STREAM...2H140 (LINE)

T-0838 Line feature River Streams (2H140) shall not be shown unless they are:
a. Continuations of area feature River/Streams, or
b. Flow directly into the sea or into inland waterway features (2H020 Canal, 2H080 Lake/Pond, or 2H140 River/Stream) that are required for port access (RPA=001). These minor streams shall only be shown inland to the point where they become obscured by intervening relief/terrrain.

T-0839 If more than three intermittent streams (2H140, HYC=006) fall within 50 mm of each other, show only the longest one.

T-0840 Streams shall only be shown to the limits of relief (3A010).

LOCK...2I030 (POINT)

L-4823 Label shall be placed horizontally on land on the right or upper bank, opposite where the symbol line meets the bank. If it conflicts with other detail, it may be placed on the left or lower bank, or entirely within the stream. It shall not overprint banks.

R-2371 The point of the Lock or Sluice Gate symbol shall be positioned pointing upstream.

R-2745 A river/stream (2H140), lake/pond (2H080) or canal (2H020) is required for port access (RPA=001) if it provides access by water to a port or other navigationally significant location for which DMA has an area requirement to chart. A river/stream (2H140), lake/pond (2H080) or canal (2H020) is not required for port access (RPA=002) if it is not used to provide access by water to a port or other navigationally significant location for which DMA has an area requirement to chart.

A lock (2I030) is RPA=001 if it is associated with a water body that is required for port access (RPA=001).

A rapids (2H120), waterfall (2H180), or dam (2I020) is an inland water obstruction (IWO=001) if it falls within a body of water that is required for port access (RPA=001). Otherwise, these features are not obstructions (IWO=002).

R-2935 Where locks (2I030) overprint shoreline (2A010, 2H075)), canal (2H020), or river/stream (2H140), these features shall be deleted where overprint occurs. Locks shall not be shown if the associated water feature is not included on the product.

ICE SHELF...2J065 (AREA)

R-2256 The open water tint shall not be shown within an ice shelf (2J065).

R-2804 When an area symbol or cased line symbol overprints the shoreline, shoreline is deleted.

R-9037 Do not show land tint inside symbol.

SNOW FIELD /ICE FIELD...2J100 (AREA)

R-2800 When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

R-9037 Do not show land tint inside symbol.

SPOT ELEVATION...3A030 (POINT)

L-4719 If the ZVL type associated with a spot elevation (3A030) on the island will fit inside the island without overprinting the shoreline (2A010 or 2H075), place the elevation (ZVL) type on land.

L-4720 If the ZVL type associated with the spot elevation (3A030) on the island will not fit inside the island without overprinting the shoreline (2A010 or 2H075), place the elevation (ZVL) type in the water adjacent to the island and in parentheses. Do not overprint the shoreline.

FEATURE: SPOT ELEVATION...3A030 (POINT)

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4737 Feature name /label shall be positioned parallel to lines of latitude and readable left to right.

R-2206 Spot elevations (3A030) shall be shown at the highest point of islands (4B135). If the width of the island is less than 5 mm, the dot or point symbol shall be deleted and the number shown by itself. If the number will not fit on land, it shall be placed in the water enclosed by parentheses, for example "(5)"

R-2281 Spot elevations (3A030) shall be shown on the summits of hills and mountains.

R-2896 The location of the contour feature (3A030) must be visible from seaward.

T-0843 If the designated location is not visible from seaward, omit spot elevations (3A030).

ISLAND...4B135 (AREA)

L-4704 Type size per area size at map /chart scale:
06 point - WID < 14 mm and LEN < 55 mm
08 point - WID >= 14 mm and < 28 mm; LEN >= 55 mm and < 82 mm
10 point - WID >= 28 mm and < 44 mm; LEN >= 82 mm and < 118 mm
12 point - WID >= 44 mm and < 62 mm; LEN >= 118 mm and < 158 mm
14 point - WID >= 62 mm and < 84 mm; LEN >= 158 mm and < 198 mm
16 point - WID >= 84 mm and < 104 mm; LEN >= 198 mm and < 240 m
18 point - WID >= 104 mm and LEN >= 240 mm
Where WID and LEN measurements are inconsistent, the larger type size shall be used.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

R-2736 Islands (4B135) within river/stream (2H140) and lake/ponds (2H080) that are not required for port access (RPA=002), may be deleted, if length is less than 10 mm at chart scale.

T-0858 Thinning Criteria for Islands (4B135):
a. If numerous small islands (length < 2 mm at chart scale) fall close inshore, on a chart intended for offshore/coastal navigation, those islands may be generalized to show a representative pattern, retaining those islands most seaward.
b. If any two point islands fall within 1 mm of each other at chart scale, retain only the most seaward one, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.
c. If a point island falls within 1 mm of the shoreline (2A010 or 2H075) delete the point island, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.

ISLAND...4B135 (POINT)

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

R-2736 Islands (4B135) within river/stream (2H140) and lake/ponds (2H080) that are not required for port access (RPA=002), may be deleted, if length is less than 10 mm at chart scale.

FEATURE: ISLAND...4B135 (POINT)

T-0858 Thinning Criteria for Islands (4B135):
a. If numerous small islands (length < 2 mm at chart scale) fall close inshore, on a chart intended for offshore/coastal navigation, those islands may be generalized to show a representative pattern, retaining those islands most seaward.
b. If any two point islands fall within 1 mm of each other at chart scale, retain only the most seaward one, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.
c. If a point island falls within 1 mm of the shoreline (2A010 or 2H075) delete the point island, unless unusual circumstances require both to be shown, for example, both are named and described in Sailing Direction publications.

VOLCANO...4B180 (AREA)

L-4700 Use the following abbreviations for ACC and EXS values:
If ACC=002, label "PA"
If ACC=003, label "PD"
If EXS=002, label "ED"
If EXS=003, label "Rep"

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4708 Date (DAT) shall only be shown if EXS=003 (Reported). Date shall be shown in parentheses. If date is unknown, delete label and parentheses from the symbol. Always show "Rep" and date on the same line.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

O-3411 Unless specifically indicated on source material as inaccurate or doubtful, etc., or modified by other override rules, feature shall be assumed to be accurate (ACC=001), and definite (EXS=001). This rule applies to accuracy and existence of unique features, and is not related to the accuracy of the source as a whole.

Following IHO practice, features whose positions are approximate (ACC=002) are labeled "PA" on source charts. Features whose positions are doubtful (ACC=003) are labeled "PD" on source charts. Features whose existence is doubtful (EXS=002) are labeled "ED" on source charts. Features that have only been reported (EXS=003) are labeled "Rep" on source charts, and usually show the date of report (DAT) in parentheses.

Definitions
PA - Position Approximate = The position has not been accurately determined, or does not remain fixed.
PD - Position Doubtful = The feature has been reported in various positions, but not definitely determined to be in any.
ED - Existence Doubtful = Indicates the posible existence of the feature, the actual existence of which has not been established.

ADMINISTRATIVE BOUNDARY...6A000 (LINE)

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

FEATURE: ADMINISTRATIVE BOUNDARY...6A000 (LINE)

L-4713 Boundary label names shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. When two names are required they shall be centered with respect to one another. Names shall be centered on the inland portion of the boundary, but may be moved parallel to the boundary <= 4 mm to avoid overprints.

L-4746 Possession of islands and island groups shall be shown by placing the country name in parentheses below the island name or island group name. If all of the islands in an Island group belong to one country, the country name shall be placed under the island group name only. If islands within the same island group belong to different countries, the country name shall be placed under each island name, and not under the island group name. Islands administered jointly by two countries shall show both country names, separated by a dash, e.g., (UK-US). Country names shall be abbreviated in the manner approved by the Board of Geographic Names. Type size for country names shall be 2/3 the size of the island name or island group name, but shall not be less than 5 point.

L-4879 If BST=001 (Definite), delete the BST label.

R-2497 In areas where there is no defined boundary between two countries (BST=004), center NM3 and NM4 in the approximate area on their respective sides of the label "NO DEFINED BOUNDARY" Pairs of labels may be repeated if necessary for large areas, but pairs should be positioned far enough apart so that they DO NOT imply a specific division line between the two countries.

R-2801 If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

R-2836 Charts that cover Canadian or Mexican waters and include U.S. waters show the same international boundaries (6A000, USE=023) shown on National Ocean Service (NOS) charts. Boundaries are not shown in open waters area.

R-2838 Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

R-2844 When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

ARMISTICE LINE...6A020 (LINE)

L-4713 Boundary label names shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. When two names are required they shall be centered with respect to one another. Names shall be centered on the inland portion of the boundary, but may be moved parallel to the boundary <= 4 mm to avoid overprints.

R-2801 If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

R-2838 Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

FEATURE: ARMISTICE LINE...6A020 (LINE)

R-2844 When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

CEASE-FIRE LINE...6A030 (LINE)

L-4714 Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

R-2801 If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

R-2838 Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

R-2844 When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

CLAIM LINE...6A040 (LINE)

L-4714 Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

R-2801 If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

R-2838 Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

R-2844 When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

INTERNATIONAL MARITIME BOUNDARY...6A050 (LINE)

L-3803 Position type 3 mm away from line on each side, reading left to right, or bottom to top if line is vertical. Position country names adjacent to each other, and TXT label to the right of NM3 label.

FEATURE: INTERNATIONAL MARITIME BOUNDARY...6A050 (LINE)

R-2756 When the US-Russia International Maritime Boundary is shown on the map/chart, a legend "See note" shall be shown next to the boundary, and the following note shown in the margin of the map/chart, or if necessary, in any open water area:

NOTE
Maritime boundary provisionally applied
pending formal exchange of insturments
of ratification.

DEFACTO BOUND. /OTHER LINE OF SEPARATION...6A060 (LINE)

L-4707 If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

L-4713 Boundary label names shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. When two names are required they shall be centered with respect to one another. Names shall be centered on the inland portion of the boundary, but may be moved parallel to the boundary <= 4 mm to avoid overprints.

R-2276 If a boundary is not recognized by the U.S. Deptartment of State as an official international boundary, but falls under the category of "Other Line of Separation", and the type of boundary is not portrayed by another Subcategory 6A FACS feature, the TXT attribute is used to label the line in accordance with Geonames/Boundary guidance; e.g. "Administrative Line", "Provisional Administrative Line."

R-2801 If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

R-2838 Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

R-2844 When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

DEMILITARIZED ZONE...6A070 (AREA)

L-4714 Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical.. Labels shall be placed INSIDE the area the boundary delimits.

R-2800 When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

R-2801 If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

R-2838 Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

FEATURE: DEMILITARIZED ZONE...6A070 (AREA)

R-2844 When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

ZONE OF OCCUPATION...6A170 (AREA)

L-4714 Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

R-2800 When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

R-2801 If feature is in a double line stream, it shall be shown in its entirety. If feature is coincident with stream's shoreline, every third set shall be shown. A set is one long dash with two short dashes.

R-2838 Land boundary lines shall extend inland for 80 mm. Boundaries that do not extend to the shoreline shall not be shown.

R-2844 When specified by the Board of Geographic Names, the following note shall be placed in the margin or land area if a FACS Sub-Category 6A feature falls within the chart.

Boundary representation is not necessarily authoritative.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

DIRECTION OF BUOYAGE INDICATOR...6C035 (POINT)

L-3804 The note "GENERAL DIRECTION OF BUOYAGE ON THIS CHART" is generally shown, reading horizontally, near the stem of the arrow, but it may be omitted in congested areas.

R-2757 The standard size "Direction of Buoyage" symbol may be reduced in size to 75% or 50% for use in congested areas.

MARITIME LIMIT...6C090 (AREA)

L-4008 If NAM = unknown, omit NAM window.

FEATURE: MARITIME LIMIT...6C090 (AREA)

L-4715 Type sizes for Maritime Limits and areas:
8 point - < 8 sq. cm.
10 point - >= 8 and < 12 sq. cm.
12 point - >= 12 and < 24 sq. cm.
14 point - >= 24 and < 100 sq. cm.
8 point - >= 100 sq. cm.

Type placement for areas >= 100 sq. cm. to < 500 sq. cm.
Two labels are shown on approximately opposite sides of the area, preferably top and bottom.

Type placement for areas >= 500 sq. cm.
Labels are placed at approximately 250 mm. interval around the perimeter of the feature.

Do not place labels around sharp corners (interior angle <135°), or along chart neatlines. Place type 1 mm away and parallel to area limit line, reading left to right, or bottom to top if limit line is vertical. Type is placed on the INSIDE of the area.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4751 Maritime Limit type "Unsurveyed Area" (6C090 MLT=005) shall be labeled with legends spaced every 50 mm along the boundary line, with type positioned 1 mm away from the line. Labels should be on the inside of the area reading from right to left, or bottom to top if boundary is vertical. Do not place text around sharp corners.

L-4752 Label for oilfield with unknown limits (6C090, MLT=018, COD=002) shall be placed parallel to south neatline in center of area. It may be moved up or down, right or left, up to 30 mm to avoid overprints with platforms.

L-4753 Type placement for areas < 100 sq. cm. Type shall be centered in area reading from left to right.

If longer of two axes is North-South +/- 20 degrees or East-West +/- 20 degrees, type is parallel to south neatline.
(a) If LEN < WID times two, type shall be placed on two approximately equal lines without splitting words.
(b) If LEN >= WID times two, and major axis is East-West +/- 20 degrees, type shall be placed on one line.
(c) If LEN >= WID times two, and major axis is North-South +/- 20 degrees, type shall be placed with each word on a separate line.
If longer of two axes is more than 20 degrees from either North-South or East-West, and LEN < WID times two, type shall be parallel to south neatline and on two approximately equal lines without splitting words
If longer of two axes is more than 20 degrees from either North-South or East-West, and LEN >= WID times two, type shall be placed parallel to the major axis on one line.e to be placed inside area, place type outside area, using Rule L-4722.

R-2290 When MLT=001 (Other), HOC shall be 005 (Natural) if the limit is associated with depths or other physical obstructions. HOC shall be 004 (Man-made) when the limit has no permanent physical obstructions.

R-2800 When the boundary of an areal symbol crosses or overprints the shoreline, the boundary overprinting the shoreline or on land is deleted.

R-2985 Minimum width for maritime limit symbols (6C090), other than pilot boarding areas (MLT=019), shall be 4 mm at chart scale.

FEATURE: MARITIME LIMIT...6C090 (AREA)

R-2987 If oil or gas fields (6C090, MLT=018) appear on a chart, the following note is shown in the margin or land area.

NOTE
OIL AND GAS FIELDS
The limit of development areas are charted around certain fields. Vessels, subsea craft and divers may be engaged in constructing and servicing installations within these areas. Other vessels are strongly advised to keep outside the charted limits. Platforms and tanker moorings generally show all or some of the following Lights: Mo (U) W 15s 10 or 15M, Mo (U) R 15s 2M, aircraft obstruction Lights; and sound fog signals: Mo (U) 30s. Unauthorized navigation is prohibited within 500 meters of structures, and of subsea production wells marked by buoys. Maneuvering tankers should be given a wide berth.

This note is not combined with other notes. Type 9 point (title) and 7 point (text) Swiss 742.
Color is Black SPC-58600.

R-3703 HOC and TXT attributes are used when MLT=001 (Other). TXT shall be worded in the form of a label that will appear on the symbol for MLT=001. PBV is used when MLT=019 (Pilot Boarding Area). COD and NAM are used when MLT=018 (Oil /Gas Field). OPS is used when MLT=004 (Spoil Area), or when MLT=015 (Dumping Ground for Hazardous Material). PRO is used when MLT=015 (Dumping Ground for Hazardous Material). If PRO is 019 (Other), a TXT label replaces the PRO label, and is used to label the hazardous material being dumped.

T-0842 If entire area feature is within the blue tinted area inside the specified depth curve (2E010) or depth contour (2E015), do not show this feature.

MARITIME LIMIT...6C090 (LINE)

L-4714 Boundary labels shall be positioned 1 mm away from and parallel to the boundary line. Type shall read left to right, or bottom to top if the axis is vertical. Labels shall be placed INSIDE the area the boundary delimits.

R-2762 DMA Charts showing the US Exclusive Economic Zone shall show this limit in the same geographic position as shown by the authoritative NOS source.

MAGNETIC DISTURBANCE AREA...9C040 (AREA)

L-4705 Labeling areas, in order of preference:
(1) Centered in area on one line in the area, type is horizontal, reading left to right.
(2) Centered in area on one line in the area, oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
(3) Centered in area on two approximately equal lines, without splitting a word, type is horizontal, reading left to right.
(4) Centered on two approximately equal lines without splitting a word, type is oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
(5) Use Rule L-4722 for type placement if the area is too small to place the type inside the area.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) *Minimum distance from symbol - 1 mm.*
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

L-4737 Feature name /label shall be positioned parallel to lines of latitude and readable left to right.

MISCELLANEOUS CULTURAL FEATURE...9D012 (AREA)

FEATURE: MISCELLANEOUS CULTURAL FEATURE...9D012 (AREA)

L-4705 Labeling areas, in order of preference:
(1) Centered in area on one line in the area, type is horizontal, reading left to right.
(2) Centered in area on one line in the area, oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
(3) Centered in area on two approximately equal lines, without splitting a word, type is horizontal, reading left to right.
(4) Centered on two approximately equal lines without splitting a word, type is oriented along the long axis of the feature, reading left to right, or bottom to top if axis is vertical.
(5) Use Rule L-4722 for type placement if the area is too small to place the type inside the area.

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

MISCELLANEOUS CULTURAL FEATURE...9D012 (LINE)

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4743 If feature type is linear, the label hierarchy is:
(1) Label shall be placed 1 mm above feature, centered.
(2) Top of label shall be placed 1 mm below feature, centered.
(3) Label may be displaced along the feature; use two labels if feature length 150 mm or greater.
(4) Do not label across shoreline (2A010 or 2H075).

MISCELLANEOUS CULTURAL FEATURE...9D012 (POINT)

L-4709 If attribute NAM is unknown, delete window and condense the remaining windows.

L-4722 Priority for type placement: 1-right center, 2-bottom center, 3-left center, 4-top center.
(A) Minimum distance from symbol - 1 mm.
(B) Maximum distance from symbol before choosing the next highest priority:
#1 4 mm measured to the West end
#2 4 mm measured to the North side (top)
#3 4 mm measured to the East end
#4 4 mm measured to the South side (bottom)

NAMED LOCATION...9D040 (AREA)

FEATURE: NAMED LOCATION...9D040 (AREA)

L-3608 Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:

1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.
2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.
3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.
4. Classification of populated places by class shall be shown by type size.
5. Population breakdown and the relative importance breakdown equivalent in culturally developed area:

1st class > 500,000.or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case
2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower
4th class > 5,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower
5th class <= 5,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case

L-3609 Population breakdown and the relative importance equivalent in an area not developed culturally:

1st class > 100,000..or 1st importance (PL 1) 14 Pt Bold Condensed Upper Case
2nd class > 50,000 to <= 100,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower
4th class > 2,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower
5th class <= 2,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case

L-4827 Geographic names shall not be placed along the axis of deepest water in a confined area, such as a channel, fairway, etc.

R-2845 On charts which contain names that do not necessarily reflect the officially recognized political status, the following disclaimer is shown when specified by the Board of Geographic Names.

> Geographic names or their spellings do not necessarily reflect recognition of the political status of the area by the United States Government.

Additional information or instructions modifying this note may be contained in the names/boundaries/disclaimers notes source package. See notes and cautions section of product specifications.

NAMED LOCATION...9D040 (LINE)

FEATURE: NAMED LOCATION...9D040 (LINE)

L-3608 Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:
1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.
2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.
3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.
4. Classification of populated places by class shall be shown by type size.
5. Population breakdown and the relative importance breakdown equivalent in culturally developed area:
1st class > 500,000.or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case
2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower
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NAMED LOCATION...9D040 (POINT)

FEATURE: NAMED LOCATION...9D040 (POINT)

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TEXT DESCRIPTION...9D045 (AREA)

L-3809 Type style for labels:
-Features that are on the land, or above the surface of the water at high water (VRC=001) shall be labeled with vertical type. Included in this category are fixed aids to navigation in water areas.
-Features that are below the surface of the water at high water (VRC=004 or 008), and floating aids to navigation (Buoys), shall be labeled with italic type.

L-4893 If feature is in ruins, and not portrayed as a ruins (1L200), or by an EXS label, add the label 'Ru' to the feature.

TEXT DESCRIPTION...9D045 (LINE)

FEATURE: TEXT DESCRIPTION...9D045 (LINE)

L-3809 Type style for labels:
-Features that are on the land, or above the surface of the water at high water (VRC=001) shall be labeled with vertical type. Included in this category are fixed aids to navigation in water areas.
-Features that are below the surface of the water at high water (VRC=004 or 008), and floating aids to navigation (Buoys), shall be labeled with italic type.

L-4893 If feature is in ruins, and not portrayed as a ruins (1L200), or by an EXS label, add the label 'Ru' to the feature.

TEXT DESCRIPTION...9D045 (POINT)

L-3809 Type style for labels:
-Features that are on the land, or above the surface of the water at high water (VRC=001) shall be labeled with vertical type. Included in this category are fixed aids to navigation in water areas.
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INDEX

CONCLUDING MATERIAL

Custodians:
DMA - MP

Preparing activity:
DMA - MP

(Project MCGT-0137)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing anivity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-H-89201/9 (DMA)	950429

3. DOCUMENT TITLE
Military Specification for Harbor, Approach, and Coastal Charts, 1:1:1,000,000 and Smaller

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code) (1) Commercial	(2) AUTOVON
Defense Mapping Agency ATTN: ATIS, MS-10	(703) 285-9238	356-9238
c. ADDRESS (Include Zip Code) 8613 Lee Highway Fairfax, VA 22031-2137	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA. 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	